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EVENTS CALENDAR

Industry Trade Shows

POWER-GEN International 2011
December 13-15, 2011; Las Vegas, Nevada
The world's largest show for power generation, featuring the EGSA On-Site Power Pavilion. For exhibit information, contact EGSA at (561) 750-5575, ext 205 or e-mail Jalane Kellough at *J.Kellough@EGSA.org.*

POWER-GEN Middle East 2012
February 6-8, 2012; Doha, Qatar
The region's premier conference and exhibition for the power generation, transmission and distribution and water industries. To exhibit, contact Bridgett Morgan at *bridgettm@pennwell.com.*

Renewable Energy World
North American Conference & Expo
February 14-16, 2012; Long Beach, California
North America's leading all renewable event. This year's program will consist of 7 tracks including: Biomass, Geothermal, Hydro, Policy, Market & Finance, Utility Integration/Smart Grid, and Wind. For more information, visit *www.renewableenergyworld.com.*

Conferences

NFMT Conference & Expo
March 13-15, 2012; Baltimore, MD
The country's #1 conference and exposition for non-residential building owners; facility managers; maintenance engineers; directors of sustainability; planning; operations and management. EGSA has partnered with NFMT to launch the 15,000 ft. Power Source Pavilion. The Power Source Pavilion and educational sessions will provide facility professionals with exclusive access to on-site power solutions. For exhibit information, contact EGSA at (561) 750-5575, ext 205 or e-mail Jalane Kellough at *J.Kellough@EGSA.org.*

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Basic Schools

Minneapolis, MN .....October 25-27
Las Vegas, NV ..... December 13-15*
*To be held concurrently with POWER-GEN International 2011

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The Importance of Partnerships

With the Fall Conference on the horizon, I am cognizant of how far EGSA has come in 46 years. When talented people come together, great things happen and this year is no different. Even in a rough economy, members are still finding great ways to support our association, whether it is sharing ideas or experiences with one another, networking to maintain lines of communication with power generation colleagues, member participation in one of EGSA's committees or subcommittees, or the purchase of an EGSA sponsorship. Members are continually looking for ways to grow our programs and increase awareness of EGSA.

With a strong marketing plan rolling out in 2012, we are going to continue to grow our relationships with other national partners. In areas like this, we need to hear from you. Magazine and media partners such as *Buildings Magazine, Consulting & Specifying Engineer, Diesel Progress and Diesel & Gas Turbine Worldwide* are helping our association tap into the end-user community and educate the consumers of onsite power. It has taken a few years to explain the big picture, but I think we are seeing the fruits of our labor in multiple ways and it is only going to get better now that we have additional EGSA staff in place to manage and harness that momentum… onward and upward!

We can also be proud of the in-roads made with our event partners like the Power-Gen Show and our recent alliance with NFMT. We can't say enough nice things about this new partnership and the direction we are heading with both partners. For those of you who don't know, we have worked very hard to carve out a Power Source Pavilion with NFMT and their show in March of 2012. If you aren't exhibiting with us yet, please consider it. With regard to Power-Gen, Jalane Kellough, Executive Director, advises that we are in a "sold out" status with a waiting list. Please be mindful that as we move into the holiday season, not to let those coordinated plans slip!

Finally, one of my biggest focuses, and one I personally feel is a challenge for all of us to own, is the EGSA partnerships with other national associations. Sharing member benefits, education and information are critical for taking our technical certification message to the streets. I have provided a "hit list" of associations to EGSA staff that is growing weekly. You are encouraged to do this as well.

So, while many are gearing up for the holiday season over these next few months, don't forget about our momentum. If you have ideas share them, if you have connections with organizations that you think could provide symbiotic benefits to EGSA, tell us and most importantly, if you have a positive experience that you feel would be beneficial to our marketing efforts, drop us a line!

Speaking of positive stories, we got some recent feedback on Technical Certification I want to share. Take a look at the correspondence below and keep em' coming! ■

Sent: Tuesday, July 26, 2011 3:29 PM
To: k.giles@egsa.org
Cc: g.rowley@egsa.org
Subject: Certification

Kim

Just read the article in the latest Powerline regarding IPS and Vlad. Small world, Vlad is a good tech, our companies have crossed paths several times.

We too have jumped in with the certification program. But we are using it for more than just a marketing tool, (although it serves this purpose as well). We administered the practice test individually to all of our techs and engineers, then used the tabulated results as a way to focus training, pairing strengths and weaknesses within our organization. The spreadsheet details the results so we can analyze where we need to improve. I took the test first then put the challenge out to the others with a bonus for passing and an additional bonus if they beat my score. I have a couple of new hires and a couple of guys in need of more training who need to be tested, but as of now we have 16 techs who have become certified.

I know this has been quite an effort for EGSA to put together, just wanted you to know you have helped our clients, our techs, and our company.

Thanks

Richard Knittel
VP Technical Services
Prime Power Services, Inc.

Sent: Monday, July 11, 2011 4:24 PM
To: e-mail@egsa.org
Subject: NAVY Cool

Hello,
I am an EGSA Member. Additionally I am in the US Navy (MUSE). I would like to include your technician certification test in our approved list of Navy certifications. In order to do this I need an outline of your school's curriculum, requirements for taking the certification test and an outline of the test.
Please include the following people in the email traffic:

Thank you. Submitted By: Stuart Dahl

George Rowley
EGSA Director
of Education
G.Rowley@EGSA.org

eLearning Program Update

The eLearning Survey

We were pleased with the strong member response to our invitation to contribute opinions, ideas, and suggestions for the potential EGSA eLearning program through an on-line survey. The invitation was sent to 1,841 EGSA members of which 120 people responded and 99 completed the survey. In terms of percentages, 6.5% of the people to whom the survey was sent started it, and about 5.4% completed it. While a greater response would have been preferred, this in fact is the second-highest response rate for surveys that we have conducted since 2006 and a very good response for surveys conducted on Survey Monkey.

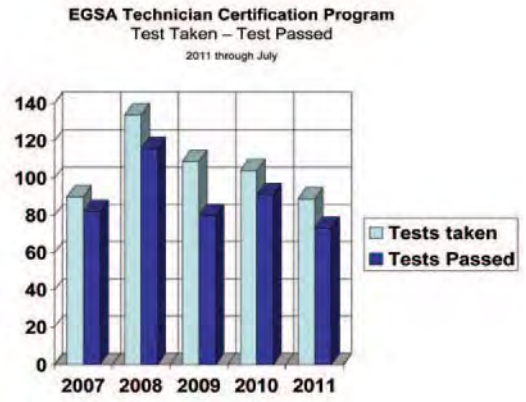
The strong response in conjunction with the following eLearning marketing survey results clearly show that members strongly support and see the potential of an EGSA eLearning program:

- 90.7% felt that EGSA Internet-based training would have Moderate Value to Very High Value. (On a Value Scale from 1 to 9 with 1 being Little to No Value, 5 being Moderate, and 9 being Very High.)
- Suggestions were made for about 240 future EGSA courses.
- Between 700 and 1000 people would participate in the EGSA 101 course (to be offered without cost to members and prospective members).
- At the most elementary level of analysis, more than 1200 people would participate in the On-site Power Generation 101 course. If we were able to extrapolate the data in a way that represented the entire EGSA membership we would be looking at a very large number of participants. There is no way to gauge the potential interest of industry personnel that are not EGSA members.
- In terms of acceptance of this form of learning, 63% had prior experience with on-line learning and 89.9% found it to be valuable.
- While 25 responses came from people who work for companies that employ from 1 to 10 people, the largest number of responses came from those who worked at companies employing 100 to 1,000 employees. 7 respondents came from companies that employ between 50,000 and 120,000 people.
- On the subject of Sponsorship, 75% of repondents said they would not have a problem excepting sponsors as a means of reducing expenditures on the development and operation of the program or even as a possible additional income stream. 43% percent of the respondents said that their company might be interested in participating as a sponsor.

Members of the On-line Learning subcommittee of the Education Committee have been studying the concept of eLearning for more than two years. Based on conversations with EGSA members and the results of our recent survey, committee members strongly believe that instituting an EGSA eLearning program presents a significant value to the industry. In view of that, we are preparing preliminary recommendations that will be presented to the Education Committee for review and action. If the committee approves, the recommendations will be forwarded to the Board for action at the September meeting.

Certification Update

In terms of certification testing, we are having a very good year. As of July, 73 of the 89 techs who were tested passed the exam (the overall pass rate since program inception is 82%). We, in fact, believe this may be the best year yet for testing volume. As evidenced in the chart below,



our best year for testing was 2008 when 116 of the 134 who took the exam passed it. This year, we are testing an average of 13 techs per month. With 5 months to go, if that average holds, it is possible that we could end up testing 154 techs this year.

Continued on page 20

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EGSA Technical Advisor
HWhittall@comcast.net

Codes & Standards

UL 2200 – Stationary Engine-Generator Assemblies has had another review with comments returned on nine of eleven changes that UL is proposing. In some cases, UL accepted the comment, while in others they did not. Below is a summary of the input and UL comments:

1. Paragraphs 2.2, 2.22 and 5.1.1 UL allowed the change from their wording of allowing live parts operating at less than 15 V dc when provided with an insulating means to a means of isolating.
2. Left in the addition of paragraphs 6.1.1, 6.1.2 and 61.3.14 and revisions to 2.42 and 62.1.4 to differentiate the requirements for units with restricted access to service personnel and for units intended for access by the user.
3. Proposed addition of requirements for disconnects used in service equipment applications. This solicited several comments that the commenter did not understand the proposal. The UL response was mainly that "the proposal represents current practice." And meets the requirements of NEC 225.36.
4. Proposed addition of Section 31A, that engine controls meet UL 508 Standard for Industrial Control Equipment. There is some confusion as to what controls, but UL's answer to the comments seems to indicate only the Engine Controls for Diesel Engines.
5. Same as 4 but adds Section 31B regarding Engine Control Modules. Again, UL would not change their wording in spite of comments. As a result, I will be voting against the revision.
6. Adds Section 31C that applies to Battery heaters. They must meet the requirements of UL 499. According to UL's comments this applies to Block Heaters and Generator Space heaters as well.
7. Proposed revisions to Table 38.3, but this is to be revised again after UL reads the comments.
8. Proposed revisions to paragraph 12.1.3 and Table 62.3 to be in accordance with Section 445.13 of the NEC. Comments pointed out the exception under NEC section 445.13 which should also be included in UL 2200.
9. Proposed addition of Section 10A that alternators and generators meet the requirements of UL 1004-4.
10. Proposed revision to paragraphs 16.3 and 16.6 requiring metal to metal contact for bonding connections.
11. Proposed revision to paragraph 17.2.3 to clarify routing and securing methods used for internal wiring where broken terminations can lead to a risk of fire or electric shock.

I voted against items 4,5 & 6 in balloting in August.

UL has proposed an additional 5 changes to UL 2200 to be voted on before September 12, 2011.

1. Proposed revision to 5.25 and 5.26 to comply with NEC 70 Section 110.26 Spaces About Electrical Equipment.
2. Proposed revision to 14.2.2 and adding 61.3.15 to identify receptacles used to supply power to certain items such as block heaters.
3. Proposed revision to 35.1.2.1 requiring vent pipes from vented fuel tanks to extend 24 inches outside the generator enclosure per NFPA 37, Chapter 6.
4. A generator set provided with an Outlet AC Circuit Breaker rated less than the rated outlet current shall be marked "THE GENSET OVERCURRENT PROTECTION DEVICE IS RATED LESS THAN THE GENSET FULL LOAD CAPABILITY".
5. Editorial revisions to update Standard Titles and remove the dates of these standards.

Continued on page 20

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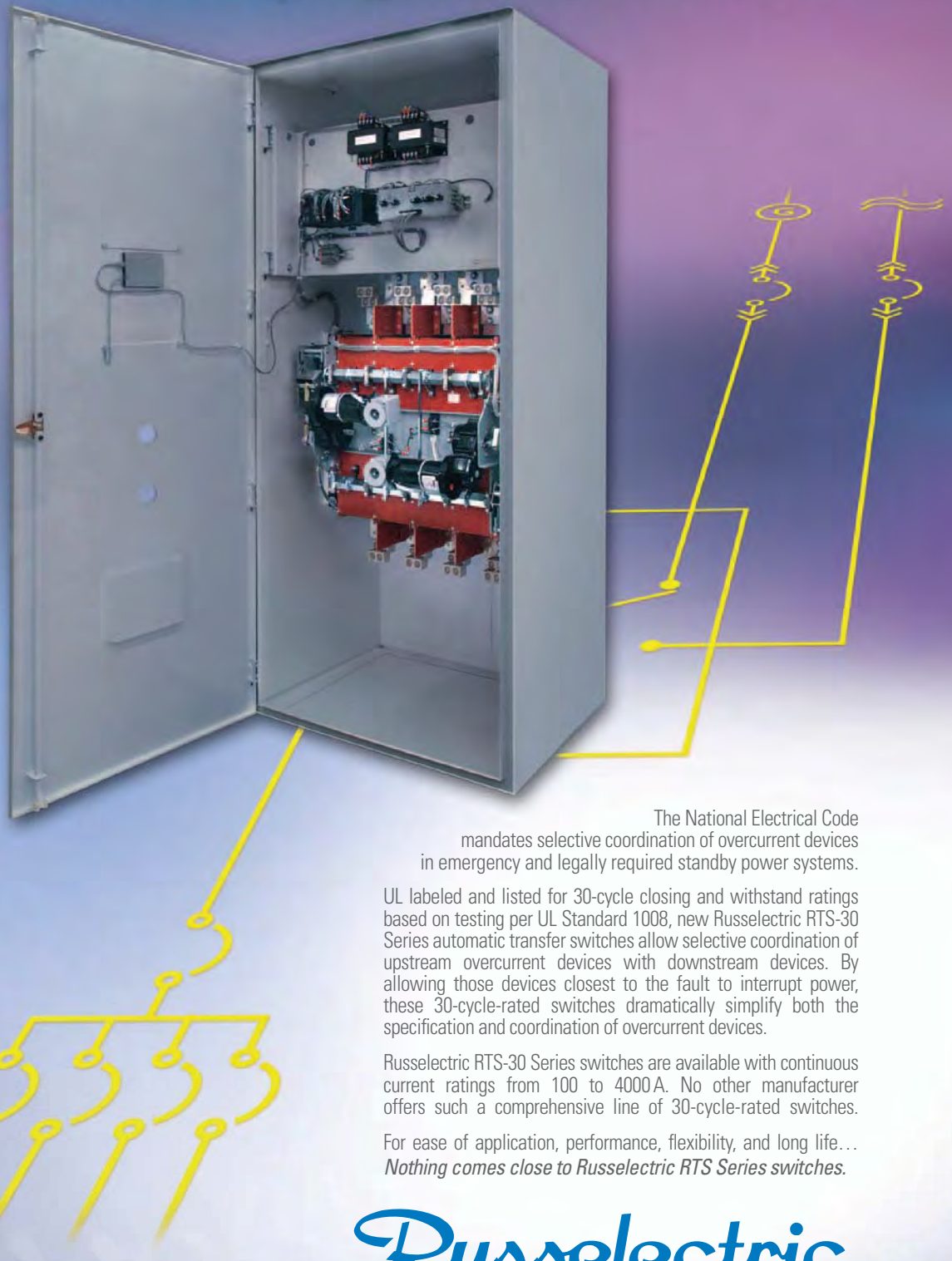

The National Electrical Code mandates selective coordination of overcurrent devices in emergency and legally required standby power systems.

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Paralleling Power Sources Which Share a Common Neutral

By: Tony Hoevenaars, P.E., President & CEO, Mirus International, Inc.
Mike McGraw, President, NSOEM, Inc.

When paralleling power sources that share a common neutral, care must be taken to limit neutral circulating currents. In these applications, it is important that voltages produced by the generating equipment are as closely matched as possible. To properly match voltages, not only do the RMS values need to be similar but the instantaneous values, which are determined by the voltage waveshapes, should be similar as well. This is not always possible, especially when paralleling generators with dissimilar pitches or paralleling different alternative energy supplies with the Utility.

When neutral circulating current is excessive, it can cause generator overheating and/or false tripping of overcurrent protection. To limit neutral circulating current, impedance can be added in the circulating path but this must be done without restricting the fault current path. By applying a unique multiple winding reactor, neutral circulating currents can be reduced by more than 75% with minimal effect on the short circuit impedance of the system.

Generator Circulating Current

Controlling circulating currents in the common neutral of parallel generator applications can be difficult especially if the generators have dissimilar pitch configurations. Heavy neutral currents can also appear when alternative energy sources are paralleled with the Utility. This would include distributed generation (DG) equipment such as diesel or natural gas generators, wind turbines, solar panels, microturbines and fuel cells when paralleled in 4-wire systems.

Heavy neutral circulating currents can appear in the shared neutral as a result of slight differences in the voltage waveforms produced by the generating equipment. When these currents get excessive, they can cause overheating in the generator windings and false protection trips, particularly in ground fault protection schemes.

These conditions are most troublesome in permanently connected parallel applications but can also be an issue during closed transition transfers in peak shaving or back-up generation applications. When neutral circulating current is excessive, it can cause generator overheating and/or false tripping of overcurrent protection. To reduce these circulating currents, which are usually triple frequency in nature, a uniquely wound, multiple winding reactor can be used to block the flow of circulating current while introducing minimal effect on the short circuit impedance of the system.

Generator Pitches, Harmonics And Voltage Waveshape

Ideally, all generator sources would produce output voltage waveforms that were purely sinusoidal. Even with their best efforts however, generator manufacturers cannot reach this goal and therefore, generator voltages will always be somewhat distorted and contain harmonics. Which harmonic numbers are present and their level of magnitude is related to how the voltage is being generated. In synchronous generators for example, the harmonic voltages generated are influenced by the particular winding pitch of the generator's alternator.

A generator's winding pitch is defined as the ratio between coil pitch and pole pitch. The pole pitch of a generator is the angular distance between adjacent pole centers. In a 4-pole machine, this is 90 mechanical degrees. If the stator coil spans the same 90 degrees, the generator is considered to be full pitch. In the interest of reducing costs, stator coils are typically not wound to their full pole pitch. In a fractional pitch machine where the coil spans only 60 degrees, the winding pitch is 60/90 or 2/3.

In addition to reducing copper costs, fractional pitch machines typically produce voltage waveforms that are slightly more sinusoidal and therefore contain less harmonic distortion. Harmonic voltages will still be present though, with their specific magnitudes determined by the machine's specific winding pitch. Table 1 shows the pitch factors for synchronous generators of various pitch types [1][2]. These pitch factors are multiplied by the respective harmonic fluxes produced by the generator to predict the harmonic voltages [2]. Since differently pitched machines have different pitch factors for each harmonic number, their harmonic voltages and voltage waveshapes will be different as well.

PITCH	FUND.	3RD	5TH	7TH	9TH
2/3	0.866	0.0	0.866	0.866	0.866
4/5	0.951	0.588	0.0	0.588	0.951
5/6	0.966	0.707	0.259	0.259	0.966
6/7	0.975	0.782	0.434	0.0	0.782

Table 1: Pitch factor impact on harmonic voltage magnitudes in synchronous generators.

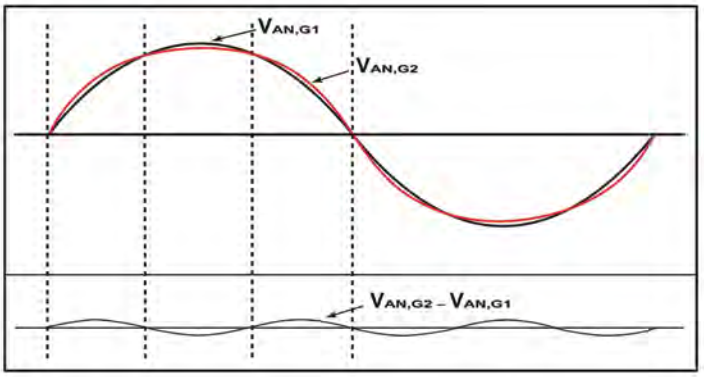

Figure 1: How differences in instantaneous voltages of paralleled equipment can produce line-to-neutral voltages that result in circulating currents.

Figure 1 provides examples of the line-to-neutral voltages of two dissimilarly pitched generators, G1 and G2. G1 generates a voltage with a slightly higher peak (typical of 5/6 pitch generators) while G2 generates a somewhat flat-topped voltage waveform (typical of a 2/3 pitch generator). When paralleled, these generators will produce a phase-to-neutral voltage that reflects the instantaneous differences in the two voltages, even when the RMS values are perfectly matched. Since this voltage passes

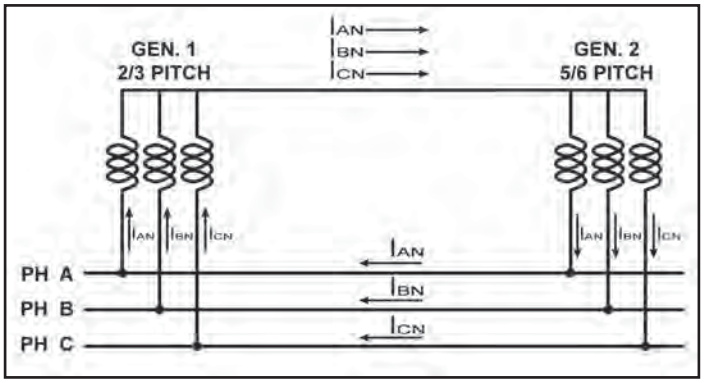

Figure 2: Flow of circulating current in a 3-wire paralleled generator application with neutrals connected and ungrounded.

three cycles in the time that the individual generator voltage passes a single cycle (the fundamental frequency), it is primarily triple frequency in nature (180 Hz on a 60 Hz system).

Circulating currents will appear as shown in Figure 2 and will also be predominantly triple frequency. The amount of circulating current introduced by each phase will be proportional to the magnitude of the differential instantaneous voltage for that phase and the zero phase sequence impedance of the system (generators and connecting cables). The total circulating current in the common neutral will be the sum of the circulating current in each phase.

Since the zero phase sequence impedance of the cables is normally quite small relative to that of the sources, it can typically be ignored. For the system shown in Figure 2 then, the circulating current can be calculated using the following equation:

Equation 1

$$I_N = \frac{3(V_{AN,G_1} - V_{AN,G_2})}{(Z_{0G_1} + Z_{0G_2})}$$

It is important to note that it is not the generator's specific pitch value that causes the circulating current but rather the difference in voltage waveshape of the two differently pitched generators. Therefore, the fact that a 2/3 pitch generator has a very low pitch factor for the 3rd harmonic does not mean that it will perform any better in paralleling operations. In fact, a 2/3 pitch generator has very low zero sequence reactance and therefore, has less impedance to reduce the flow of circulating neutral current [3]. Circulating currents can result with any generator pitch type when it is not matched with a similarly pitched unit or it is paralleled with the Utility.

Further complicating the issue is that this analysis has assumed that the generator loading is linear. Today's power electronic loads (such as variable speed drives, UPS systems, computer equipment, AC/DC rectifiers, etc.) are nonlinear in nature and as such, are current sources of harmonics. During their operation, the current harmonics they draw will increase the voltage distortion throughout the distribution system. This includes the output terminals of the generator where the generator's source impedance (particularly the subtransient reactance or Xd") will create voltage drops at each harmonic number in relation to the nonlinear load harmonic currents [4]. These voltage drops will introduce additional harmonic distortion at the generator's output terminals. Differently pitched generators will have different impedances to the various harmonics and therefore, the differential voltage may be much greater than would be expected with linear loading.

Traditional Methods Of Treatment

The requirement to parallel generators is not new and therefore, circulating currents in the common neutral is also not a totally new phenomenon. What has changed however is the frequency that these incidences are occurring as the use of DG equipment increases.

One method of limiting circulating currents has been to ensure that all generators have the same pitch. This, of course, is not always possible or even preferred especially when expanding a site that has older, existing generators.

Another approach is to add impedance in the common neutral. Standard reactors could be used for this purpose but any impedance added to reduce the circulating neutral current would also significantly reduce the single phase fault level in the system. A slight reduction in fault level may be preferred in large systems where the fault level is initially high but normally the level of impedance required to suitably reduce the circulating current will reduce the fault current to unacceptable levels. A fault level that is too low can be a serious safety concern since it can prevent overcurrent protection from operating and lead to fire hazards, such as arcing faults.

Occasionally, an ungrounded system is employed and the generator neutrals are not connected together. In this scenario, there will be no path for the circulating current to flow. There will also be no path for single phase fault currents so ground fault monitoring and other measures used for ungrounded systems must be employed.

Application Of A Multiple Winding Reactor To Reduce Circulating Current

A multiple winding reactor can be used to reduce neutral circulating currents in parallel generator applications. It is installed in the common neutral of paralleled generators (see Figures 3 to 5) in order to add impedance to block the flow of circulating currents. It does this without significantly decreasing the 1-phase fault level by ensuring that the impedance of the fault path to ground remains low. Also there is no change to the phase-to-phase fault level.

The reactor has three sets of terminal connections – X, Y and Z. The coils are wound such that the impedance through the Y and Z terminals is several times larger than the impedance between either the Y or the Z terminal to X. The Y to Z impedance is approximately 45% at the triple frequency of the circulating neutral current. The impedance to 1-phase fault current, on the otherhand, is < 1%. This is due both to the unique winding configuration of the reactor and to the fact that the core will become saturated during a fault condition, lowering its impedance. The system's 1-phase fault level therefore, will be reduced only minimally. 3-phase and phase-to-phase faults will not pass through the reactor so fault level under these conditions will be unaffected.

The multiple winding reactor is used when two or more generators of dissimilar pitch are paralleled together or a generator is paralleled with an alternate source, such as the Utility. In applications where multiple generators of the same pitch are being paralleled with one or more generators of a different pitch, the multiple winding reactor need only be installed in the neutral connection between the two sets of similar pitched generators as shown in Figure 4.

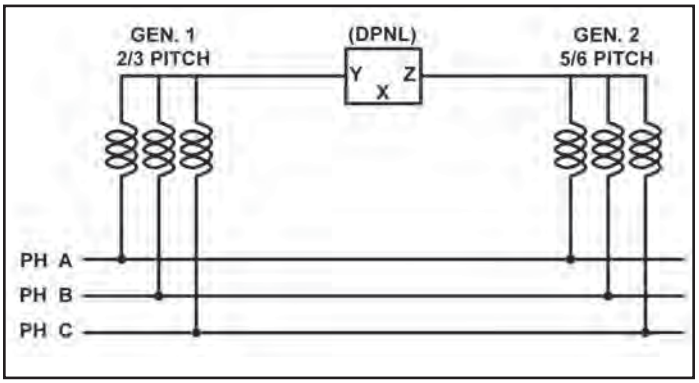

Figure 3: Installation of a multiple winding reactor to prevent the flow of circulating current in a 3-wire paralleled generator application with ungrounded neutral.

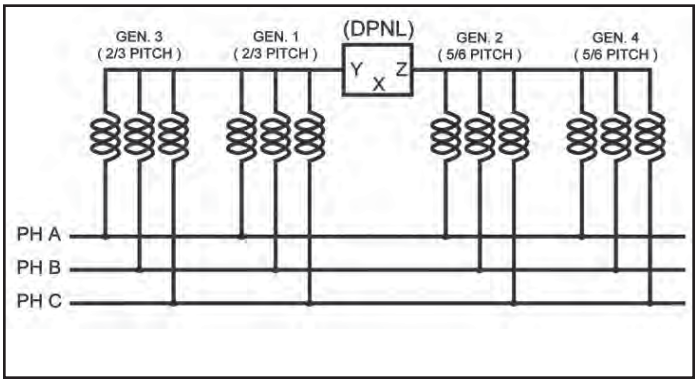

Figure 4: Installation of a multiple winding reactor where multiple generators of similar pitch are connected to one or more generators of a different pitch.

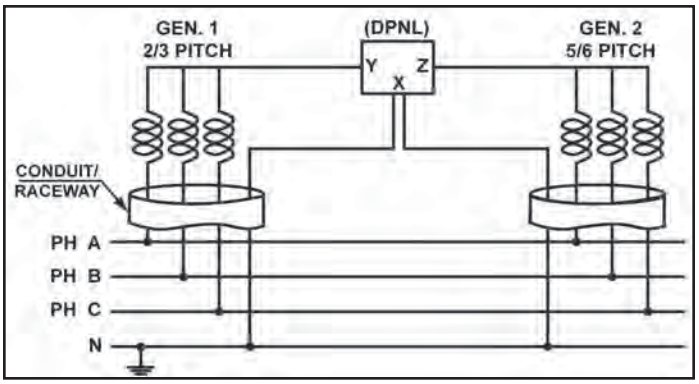

Figure 5: Installation of a multiple winding reactor to prevent the flow of circulating current in a 4-wire paralleled generator application.

In 3-wire systems, the neutral may or may not be grounded. If grounded, it should be grounded at the X terminal of the multiple winding reactor. If left ungrounded, the power system must be equipped with ground fault monitoring as per electrical code requirements.

Figure 5 shows how the multiple winding reactor should be connected in a 4-wire application where the neutral is being used as a return path for 1-phase, phase-to-neutral loads. The diagram shows the neutral being grounded at the switchboard, which is the recommended location, but it can alternatively be grounded at the X terminal of the multiple winding reactor or at the common neutral anywhere else in the distribution system.

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The requirement is simply that the neutral be properly grounded and grounded at only one location. Also to reduce stray fluxes, it is recommended that the neutral conductors be run in the same conduit as the phase conductors.

Sizing The Multiple Winding Reactor

The amount of current which will circulate between dissimilarly pitched generators or other paralleled sources with somewhat different voltage waveshapes, can be relatively difficult to determine precisely. As discussed earlier, it will be proportional to the level of instantaneous phase voltage between the sources and the zero phase sequence impedance of these sources. This information is not often readily available however. Fortunately, a conservative analysis can be done to ensure that significant reduction is achieved and that the mitigation device is appropriately sized to handle the load placed upon it.

Using Equation 1, various configurations of paralleled sources can be analyzed to determine the level of neutral current that could be expected. These calculations then can be repeated but with the impedance of the multiple winding reactor included. From these calculations, a sizing table was established (see Table 2) which allows for easy selection of conservatively sized units based on the kVA or kW capacity of the paralleled power system.

For 4-wire applications, where the neutral is being used as a return path for 1-phase, phase-to-neutral loads, the reactor must be sized for the return neutral current as well as the circulating current. For this purpose, a dual current rating is applied with the highest rating being for the returned neutral current. Sizing the reactor involves first determining the total kW or kVA capacity of all generators or other paralleled sources. Then from the table, the reactor current rating that corresponds to the total capacity in the appropriate system voltage column is selected.

This will size the unit for a return neutral current rating that is at least 50% of the full phase current rating of the application. For 208-240V systems, where it is much more likely to have phase-to-neutral loads, the return neutral rating will be at least 85% of the full phase current rating of the application. If the actual return neutral current is expected to be higher than these levels, then a larger sized unit can be selected. The larger size will be just slightly less effective in reducing circulating current. For 3-wire applications or for applications where return neutral current is known to be lower, the next smaller size unit can be selected.

Reactor Rating (Amps)		Total Capacity of all Paralleled Sources - kW [kVA]			
Return Neutral	Circulating	208-240V	460-480V	575-600V	660-690V
200	100	68 [85]	250 [312]	320 [400]	360 [450]
500	250	160 [200]	640 [800]	800 [1000]	900 [1120]
1000	500	335 [420]	1280 [1600]	1600 [2000]	1800 [2250]
1500	750	500 [625]	2000 [2500]	2400 [3000]	2720 [3400]
2000	1000	675 [840]	2500 [3126]	3200 [4000]	3600 [4500]
2500	1250	840 [1050]	3200 [4000]	4000 [5000]	4500 [5625]
3000	1500	1000 [1250]	3800 [4750]	4800 [6000]	5475 [6843]

Table 2: Multiple winding reactor selection table for 60 Hz systems [5].

Application With Dissimilarly Pitched Generators

A restaurant industry distribution facility in Conroe, Texas expanded its standby generation capacity by adding a 1000 kW generator to the existing 750 kW unit at the site. A 1-Line of the installation is shown in Figure 6. When energized, the electrical contractor noticed that there was an excessive amount of current in the common neutral of the two generators. The contractor was concerned that this extra current would cause the generators to overheat.

When the new generator was purchased, it was bought from the same manufacturer but being unaware of any issue associated with matching generator pitches, the purchaser never specified a particular pitch configuration. As it turned out, the new 1000 kW generator had a 5/6P winding while the existing 750 kW generator was 6/7P. This difference in pitch was enough to create the circulating current which was measured by the contractor to be in excess of 150A.

In order to reduce the circulating current, a multiple winding reactor was installed in the common neutral between the two generators (see Figures 7 and 9). A 1300A unit was selected based on the total 1750 kW generator capacity. (This size was available at the time but now a 1500A unit would be used.)

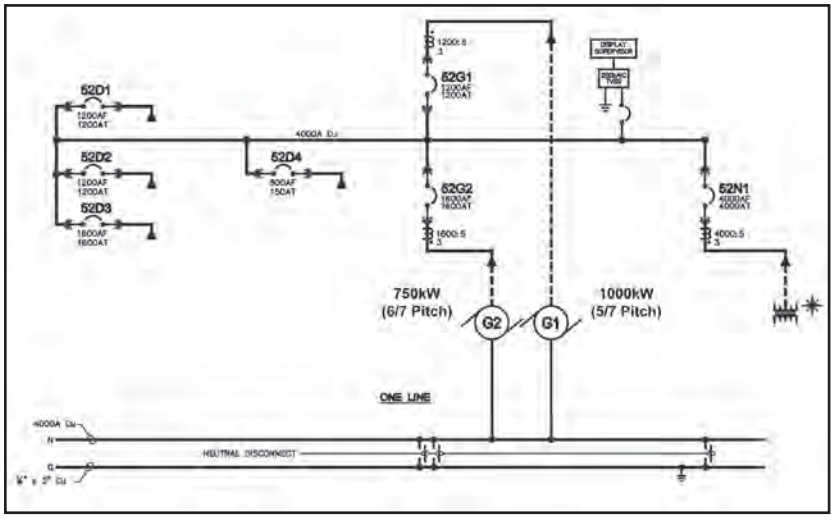

Figure 6: Installation of dissimilarly pitched parallel generators at a distribution facility.

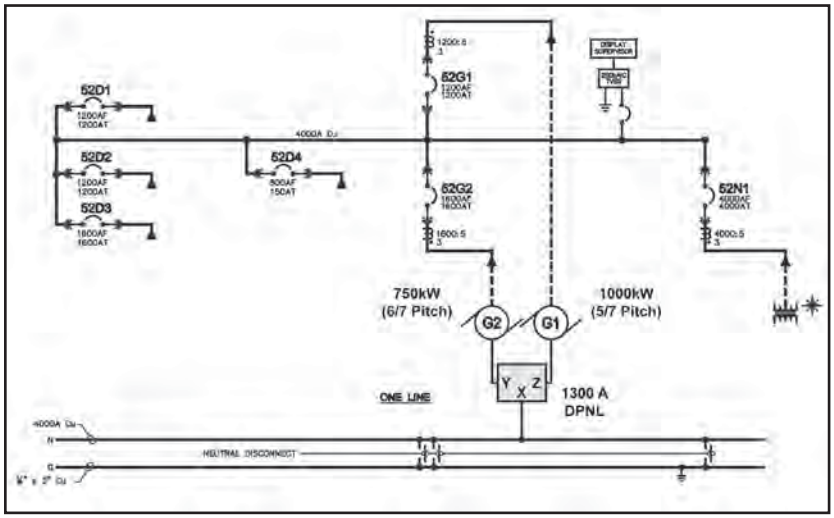

Figure 7: Installation of 1300A multiple winding reactor at a distribution facility.

Figure 8 shows the residual current in the neutral after the multiple winding reactor was installed and running under peak load condition. The total of 38A was a significant reduction from the initially measured value. It is important to note that most of this current is return neutral current from phase-to-neutral loads. Virtually all of the circulating current was eliminated.

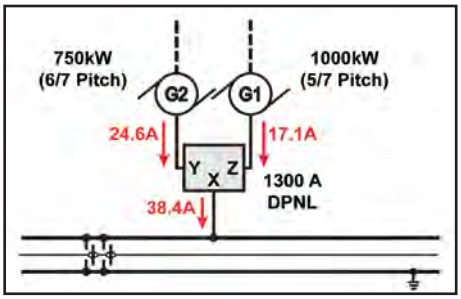

Figure 8: Flow of neutral current after installation of multiple winding reactor.

Figure 9: Photo of multiple winding reactor installation.

Generator Paralleled With Utility Application

Use of the multiple winding reactor to control neutral circulating current is not only limited to paralleling of dissimilarly pitched generators. It can also be effective in other parallel source applications with common neutrals and dissimilar voltage waveforms. For example, when a generator is operated in parallel with a Utility source, the voltage waveforms are likely to be somewhat dissimilar and therefore result in neutral circulating current [6]. This can occur in either permanently paralleled applications or during closed transition transfers in peak shaving or backup generation applications. Also, other sources of distributed generation, such as wind turbines, solar panels, fuel cells, microturbines, etc., can have excessive circulating neutral currents when paralleled with the Utility in 4-wire systems.

After the Heating Plant at an American College was fit up with peak shaving generators, it was found that circulating current in the neutral reached over 900A even with relatively light loading on the system. Two similarly pitched 800 kW generators were paralleled with a 1500 kVA Utility transformer (see Figure 10). The excessive neutral current was causing the Utility transformer and generators to run hot even under light loading.

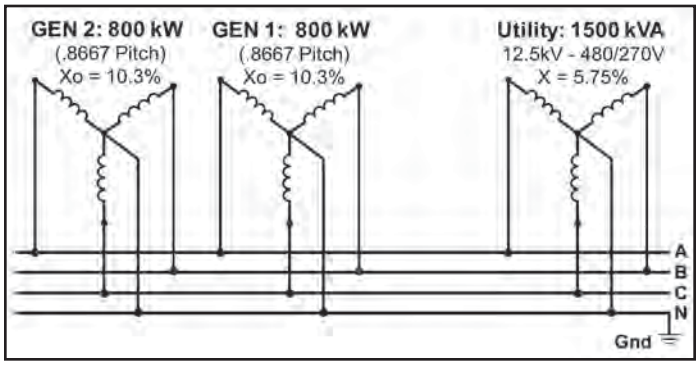

Figure 10: Simplified 3-Line Diagram at an American College Heating Plant.

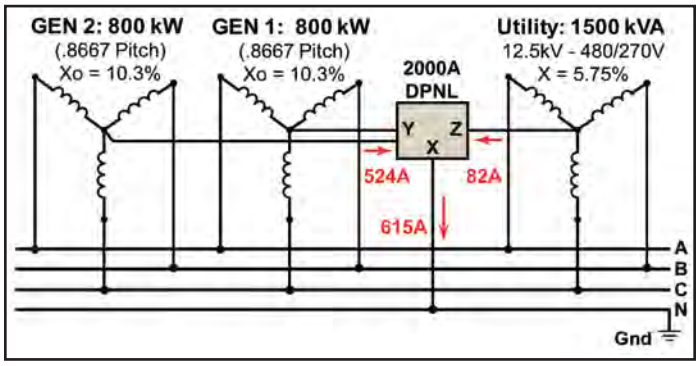

Figure 11: Simplified 3-Line Diagram at an American College Heating Plant with multiple winding reactor.

The total supply capacity of this application was 3500 kVA (1500 kVA transformer plus 1000 kVA for each generator). From the selection table, this would normally require a 2500A multiple winding reactor but based on the amount of 1 ph loads, it was decided that a 2000A unit would be sufficient.

Figure 11 shows the system 3-Line with the multiple winding reactor connected and the measured neutral current values while operating at peak load. After installation of the reactor, neutral circulating current was essentially eliminated. The remaining neutral current is the result of 1 Phase, Ph-to-N loads such as the 277V lighting. The reduction was enough to dramatically lower the load on the Utility transformer and generators allowing for their safe operation.

Summary

When paralleling multiple generators with dissimilar winding pitches or power sources with differing voltage waveshapes, heavy circulating currents can appear in the common neutral. These circulating currents can be effectively reduced by the application of a multiple winding reactor. A uniquely wound reactor introduces high impedance in the path of neutral circulating current (triple or any other frequency) but very minimal impedance in the fault current path. This significantly reduces the circulating current by more than 75% with negligible effect on the system fault level. It is very simple to install and, as a purely passive reactor, is extremely reliable.

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About the Authors

Tony Hoevenaars is President and CEO of MIRUS International Inc. a designer and developer of world class power quality improvement products. Prior to joining MIRUS in 1996, Tony was the Chief Facilities Electrical Engineer at an IBM manufacturing facility in Toronto where he gained extensive experience in solving power quality related problems, particularly in the area of harmonics. Tony is a Professional Engineer, member of IEEE and has published various papers on power quality including papers presented at various IEEE conferences.

Michael McGraw is President of NSOEM Inc. a company he founded in 1996 that specializes in transformer and filter harmonic mitigation applications for land and offshore Oil & Gas systems and MV Solid State starting for large motors. Previously Mike was the OEM Sales Manager for MV Switchgear manufactured by Powercon Corp. Mike is a member of the IEEE. ■

EDUCATION

Continued from page 8

That would surpass the 2008 numbers by a good margin. Based upon averages that would mean that 126 techs could be certified in 2011.

You may know that we had a bit of a hiatus in developing and implementing our certification marketing program. With the arrival of Kim Giles, EGSA's new Marketing Manager in June, we are getting the marketing program back on track. This marketing effort will be directed to end users whom we intend to reach in a variety of ways. One such way is through our new alliance with NFMT (the facility manager's organization) in the form of "EGSA's Power Source Pavilion" at their March 2012 Expo in Baltimore. Additionally, President John Kelly has launched the Kelly Challenge in which members are urged to identify the advantages of utilizing certified technicians in RFP and proposals.

As always, we appreciate your support. If you have suggestions for, or questions about, EGSA education programs, please contact George Rowley via an e-mail to *g.rowley@egsa.org* or by phone at 561-237-5557. ■

CODES & STANDARDS

Continued from page 10

NFPA sent out two emergency TIAs Log numbers 1031 and 1032 for NFPA 99 Proposed 2012 edition Standard for Healthcare Facilities. They were requesting to add two new chapters. Log 1031 chapter is titled *Plumbing*, Log 1032 *is Heating, Ventilation and Air Conditioning (HVAC).* Apparently these two chapters were returned to the committee at the Association technical meeting in June 2011 and so were not included in NFPA 99 as voted on in that meeting. However, the requirements in those chapters are needed in the 2012 edition of NFPA 99. Comments had to be submitted to NFPA headquarters by July 20, 2011 and will come to a vote prior to the September EGSA Fall Conference. ■

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Fuel Treatment: Myths Uncovered

By: Bob Tatnall, P.E., President of Fairville Products

I spent thirty years as a materials engineer with DuPont, specializing in corrosion, linings and coatings. In 1968 I first observed a little-known phenomenon called microbiologically influenced corrosion, or MIC. I was fascinated by this destruction of metals and alloys by bacteria, and spent the rest of my DuPont career learning about how bacteria and other microorganisms interact in different environments. I have collaborated with researchers at universities worldwide, learning not only about bacteria, but also about biofouling, or the buildup of slime masses as a natural habitat for bacteria and fungi (yeasts and molds).

Tugboat fleets, ocean going vessels, agricultural equipment and virtually all of our commercial trucking depend on diesel fuel. The damage and costly effects of corrosion, biofouling and sludge build up include the premature fouling of injectors and filters and the expense related to sludge removal and disposal.

Over the last 20 years, I have been confronted with many misconceptions about diesel fuel and the effects of bacteria and corrosion. The following are among the most prevalent, and are, unfortunately, being marketed as TRUTHS (knowingly and unknowingly) by Fuel Additive and Fuel Polishing companies.

MYTH 1: Good Fuel Quality will Prevent Problems.

Ultra-low-sulfur diesel (ULSD) is almost always of excellent quality when it leaves the refinery. The problem is that contamination happens during storage and transport – and this contamination is the source of many of our fuel system problems. Water (condensation and leakage) combines with common bacteria (who come with the water) to make sludge and biofilms – and this combination of biofilm and active bacteria leads to pitting corrosion. Sludge fouling leads to plugged filters and fuel lines.

MYTH 2: Biocides Will Sterilize the Fuel and Prevent Problems.

The bacteria that form sludge and corrosive deposits are a type know as "slime forming" bacteria. These creatures are difficult to control in the body using antibiotics – and they are likewise difficult to control in nature using biocides. Sometimes using a biocide triggers a reaction known as "mucoid stage" (i.e. "sludge formation on steroids") and there even are cases where bacteria have been able to convert the biocide to a "food" that promotes growth. Even in those cases where first treatment with a biocide seems to help, repeat or constant use of a biocide can lead to development of resistant strains. Biocides are, therefore, rarely a long term fix.

MYTH 3: Polishing Fuel will Filter out the Solids and Bacteria and clean the Fuel System.

Fuel polishing is most common in the marine industry and consists of circulating fuel through filters to remove particles and suspended water and make the fuel look clean. Problem is, most of the slime, sludge and bacteria are attached to the walls of tanks and lines or stuck to filters. Removing the suspended stuff to make the fuel look clean does little to stop problems, and the fuel will quickly become ugly again unless the system is cleaned completely. A better and more cost-effective solution would be to use a system treatment that dissolves and prevents sludge and slime.

MYTH 4: Unstable Fuel is the Problem – use Stabilizers.

Fuel stability was a legitimate issue in yesterday's high-sulfur fuels. Today's ULSD is almost always rock-solid stable, and chemical stabilizers would be a waste of money. The exception is in certain modern extreme-recycle engines that impart high pressure and heat stress on the fuel and can lead to filter plugging and black, non-slimy deposits in fuel tanks. There are chemical stabilizers that will prevent this, but most common additives that say they stabilize fuel do not work at all against this particular problem.

MYTH 5: BIODIESEL cleans sludge out of Diesel Systems.

This misconception comes from the observation that when biodiesel has been introduced into a dirty fuel system the fuel becomes dark and ugly looking. Actually, sludge grows faster in biodiesel than in straight petro-diesel. If you have been using a sludge-control additive and it seems to have been working, you might have to use a higher dose rate with biodiesel to get similar results.

Myth 6: New Equipment doesn't need Treatment for Sludge Control.

Fuel contamination is a random and unpredictable phenomenon. Some old systems are still clean and have no apparent sludge or fouling issues. When fuel is contaminated, however, fouling and filter plugging can be a problem starting with the first fill. If you are inclined to treat fuel for any reason, treating to prevent sludge and fouling is the smart-money first choice.

MYTH 7: Corrosion is NOT a Problem in Diesel Systems.

– In fact, corrosion associated with biofilms in ULSD systems has become such a big problem that the petroleum industry has asked the American Society for Testing and Materials (ASTM) to form a task force to study cause and solutions. This insidious problem not only can cause leaking fuel lines and tanks, but also may damage tight tolerance surfaces in injector pumps, injectors, and metering devices. We have learned in laboratory studies that this issue can be prevented by using certain combinations of filming amine corrosion inhibitors.

MYTH 8: Kerosene Blending is the Perfect Winter Cold-flow Answer.

By diluting the paraffin content of diesel fuel, kerosene blending will reduce the temperature at which waxing of filters and gelling of fuels occur, depending on the fuel and the expected temperatures, kerosene/fuel ratios of 50:50 and higher may be required. This approach has drawbacks, however. First of all, kerosene blending does nothing to stop fuel line freeze-ups due to condensed moisture and deposits. Secondly, kerosene reduces the lubricity of ULSD, which is already a poor lubricating fuel – and the result can be accelerated wear of injector pumps and injectors. To make matters even worse, ULS kerosene costs 30, 40 or even 50

cents more than diesel fuel. For a tiny fraction of this cost, winterizing additives are available that will do what kerosene does – plus add lubricity and offer anti-freeze protection against freeze-ups. It no longer makes good sense to blend with kerosene.

Myth 9: Alcohols should be used to remove Water from Fuel Systems.

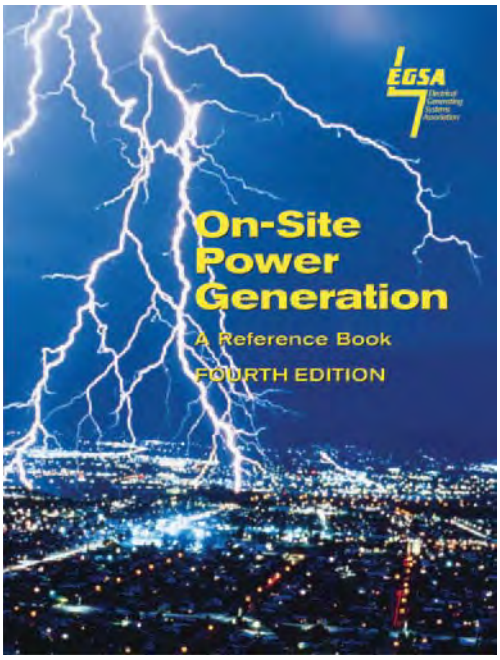
How long have we been using "dry-gas" (isopropyl alcohol) in the winter because we were told that it would remove water? While it's true that alcohols can increase the solubility of water in fuel under certain conditions, this is not a good way to deal with water in fuel. Use of alcohols in diesel fuels is a bad idea for several reasons:

1. Alcohol does not remove significant quantities of free water from fuel tanks.
2. Water is corrosive to steel (i.e. rusting), but an alcohol/water mixture is even more corrosive to steel.
3. Alcohols are often good "food" for bacteria and other troublesome microorganisms
4. Alcohols can cause swelling and breakdown of gasket and seal materials.

Our advice: Find a knowledgeable fuel additive person and let them advise you about your fuel issues.

About the Author

Bob Tatnall, P.E. is President of Fairville Products, manufacturers of the Fuel Right line of fuel system treatments for sludge/fouling/corrosion control in diesel fuel. More information can be found at *www.fuelright.com* or by contacting Dan Jenkins 813-877-4665 / *djenkins@grapplehook.com.* ■



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Top Right: The engineering staff works on the design of a new waste heat recovery silencer.
Bottom Right: A model ECXSH-6615-2.0 waste heat recovery silencer for steam service is prepared for shipment to Williamsport, PA. This unit will be installed with a Caterpillar gas engine.

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Dating back to 1912, Kickham Boiler is a 30-plus year member of EGSA whose primary activity in the power industry is Vaporphase waste heat recovery silencers. Kickham Boiler received its first ASME Code Stamp in the 1920's and has been building waste heat recovery silencers since 1972. The equipment product line includes engine exhaust recovery silencers for hot water service, steam service and thermal heat transfer oils for reciprocating gas and diesel engines.

Located in St. Louis, Missouri, Kickham Boiler & Engineering is a family-owned company that has been committed to the power industry for nearly 100 years. When the Kickhams emigrated from Ireland, they were blacksmiths by trade and with these skills, they moved into the boiler and pressure vessel industry. Like many companies, technology has helped Kickham Boiler streamline how they manufacture products. Vaporphase has been providing waste heat recovery systems since the mid 1930's. Not only does the company name stand for quality and longstanding commitment to the industry, the company also has a strong commitment to quality products, customer service and satisfaction.

The target audience for Kickham products, while it has evolved over the years, includes engine manufacturers and engine dealers. Their product lines include Vaporphase Waste Heat Recovery Systems, Tanks, Boiler Erection and Repair, Towers and ASME Code Products. The company exports to Canada, the Philippines, Mexico and the Caribbean. They also manufacture under license in Australia. While co-generation is very popular in Europe, at this time, they are not considered a target market because their low temperature systems are not built to ASME Code. "Because our units are built to the ASME Boiler and Pres-

A code certified welder welds the numerous tube to tube sheet joints in preparing the tube bundle for a WHRS.

sure Code, the overseas market, not including Canada, has not been as high priority as it could be," says John Thuet, Project Engineer, at Kickham Boiler & Engineering.

One of the next things to watch for in the industry is a tax incentive for use on co-generation products. Since the technology is an efficient source of energy, it is their belief that the engine industry will continue to improve the efficiency and reliability in engine performance, as well as the progress of biofuels."We believe our product has always been 'green' since it increases the overall efficiency of engines used for onsite power. By recovering the jacket water heat and the exhaust heat and putting the heat to work for a heating, air conditioning or process, you are more than doubling the thermal efficiency and offsetting fuel that would otherwise be required to generate the equivalent heat in a fired boiler," says Warner Bauer, Vice President of the Vaporphase Division. "While there has been a slowdown in co-generation products, we are branching out into greener technologies by working with other organizations on proprietary product development on green technologies."

One of biggest expectations for the coming year includes an upswing in the co-generation market. Several of the co-generation projects that were put on hold a year ago are resurfacing and proceeding with their project timeline. As time goes on, more people will find the benefits associated with co-generation and the public utilities will also see it as an asset to help provide more reliable service to their customers. The name Kickham Boiler & Engineering is really more than just a 100-year old industry name, it also stands for cutting edge technologies that will lead us into the future.

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Under the leadership of its Board of Directors and operating through its various committees and staff, EGSA strives to educate, provide networking opportunities and share relevant knowledge and trends with industry professionals including manufacturers, distributor/dealers, engineers, manufacturer representatives, contractor/integrators and others serving On-Site Power consumers.

1. Contact Information

Please type or print all information in upper and lower case (NOT ALL CAPS!)

Company _____

Address _____

City _____ State/Province _____

Zip/Postal Code _____ Country _____

Phone _____ FAX _____

Official Representative _____ Title _____

Representative's E-Mail _____ Company's Web Address _____

How did you hear about EGSA? ❑ Web site ❑ *Powerline* magazine ❑ Colleague ❑ POWER-GEN ❑ Other _____

Why are you joining EGSA? ❑ Certification Program ❑ CEU Program ❑ Power Schools ❑ Buying Guide Listing ❑ Other _____

2. Member Classification

Read the Membership classifications below and check the box that describes your firm's classification.

I. FULL MEMBERSHIP

❑ MF **Manufacturer Membership**
Any individual, sole proprietor, partnership or corporation seeking membership must apply for a Full Membership as a manufacturer if they meet one or more of the following criteria:
1. They manufacture prime movers for power generation.
2. They manufacture generators or other power conversion devices producing electricity.
3. They manufacture switchgear or electrical control devices.
4. They manufacture or assemble generator sets, UPS systems, solar power, hydropower, geothermal, or any other power production or conversion system including related components or accessories for national or regional distribution.
5. They are a wholly owned subsidiary of a firm that qualifies under rules one through four.

❑ DD **Distributor/Dealer Membership**
Any individual, sole proprietor, partnership or corporation actively engaged as a distributor or dealer for products listed under Manufacturer Membership may apply for Full Membership as a Distributor/Dealer. If an organization qualifies under Manufacturer Membership, it is not qualified under this section.

❑ CI **Contractor/Integrator Membership**
Any individual, sole proprietor, partnership or corporation actively engaged as a Contractor or Equipment Integrator of products listed under Manufacturer Membership, not bound by brand, geographic territory or contractually obligated as a Distributor/Dealer of a specific product. These firms typically purchase products from a Distributor/Dealer, Manufacturer or Retailer, adding value through installation, product knowledge, relationships, unique services, etc., and then re-sell the resulting product to an end-user.

❑ MR **Manufacturer's Representative Membership**
Any individual, sole proprietor, partnership or corporation actively engaged in the representation of products listed under Manufacturer Membership may apply for Full Membership as a Manufacturer's Representative. If an organization qualifies under Manufacturer Membership, it is not qualified under this section.

❑ EM **Energy Management Company Membership**
Any individual, sole proprietor, partnership or corporation engaged in energy management, including Energy Service Companies (ESCOs), Independent Power Producers (IPPs), Integrators, Aggregators, and other similar enterprises may apply for Full Membership as an Energy Management Company.

❑ **Associate Full Membership** *(mark appropriate category at right)*
Any individual, sole proprietor, academic institution, student, partnership or corporation meeting the requirements of Associate Regular Membership may apply for Full Membership at their option to enjoy the privileges of Full Membership, including the rights to vote and to serve on EGSA's Board of Directors. Initiation fees and annual dues will be assessed at the existing non-manufacturer Full Member rates.

II. ASSOCIATE REGULAR MEMBERSHIP

❑ AA **Trade Publication Membership**
Any trade publication dealing with the electrical generating systems industry or its suppliers may apply for Associate Membership–Trade Publications.

❑ AB **Trade Association Membership**
Any trade association made up of individual or company members sharing a common interest in the electrical generating systems industry may apply for Associate Membership–Allied Associations.

❑ AC **Engineer Membership**
Any consulting or specifying engineer may apply for Associate Membership–Engineer. Membership may either be held in the employer's name or individual's name under this classification. Individuals whose employer qualify as a Full Member, as described in the Full Membership section, do not qualify for this category.

❑ AD **End-User Membership**
Any individual employee of a company who owns or operates electrical generating equipment and/or related switchgear or components, whose responsibility to his employer includes planning, design, installation, supervision, or service of such equipment may apply for Associate Membership–User. Membership may either be held in the employer's name or individual's name under this classification. Individuals whose employer qualify as a Full Member, as described in the Full Membership section, do not qualify for this category.

❑ AE **Service Membership**
Any individual, organization or academic institution that offers services such as research, testing or repair to the electrical generating systems industry may apply for Associate Membership–Services. Membership may either be held in the individual's name or the organization's name under this classification. Individual companies whose employer or parent organization qualifies as a Full Member, as described in the Full Membership section, do not qualify for this category.

❑ AG **Educational Institution Membership**
Any postsecondary vocational-technical school or college offering on-site power generation-related instruction may apply for Associate Membership–Education Institution.

❑ AR **Retiree Membership**
Any individual who retires from a member company may apply for Associate Membership–Retired. This classification does not apply to any individual who is employed more than 20 hours per week.

❑ AF **Student Membership**
Any individual currently enrolled at an academic institution may apply for Associate Membership–Student.

Dues Schedule (Use for Section 3)

	Annual Dues	Initiation Fee	TOTAL
Manufacturer	$825	$200	$1025
Distributor/Dealer	$285	$100	$385
Contractor/Integrator	$285	$100	$385
Manufacturer's Representative	$285	$100	$385
Full Associate Member	$285	$100	$385
Energy Management Company	$200	$100	$300
Regular Associate Member	$200	$100	$300
Retiree Member	*Complimentary*	$0	$0
Student Member	*Complimentary*	$0	$0

NOTE: A FULL 12-MONTH DUES PAYMENT MUST BE RECEIVED WITH THIS APPLICATION. The Association's Membership Year is January 1 through December 31. Dues payments that extend beyond the first Membership Year will be applied to the second year's dues.

FULL PAYMENT MUST BE RECEIVED WITH APPLICATION.

3. Membership Dues (Please fill in the appropriate TOTAL amount from the above dues schedule.)

Membership Dues $_____

Membership Plaque (optional)** $ 49.95**

On-Site Power Reference Book (optional)** $ 125.00**

Florida Residents: Add 6% Sales Tax to ** items $_____

*Continental US Residents add $5 shipping/handing to**items. Non Continental US Residents should call EGSA Headquarters for shipping charges for **items.* $_____

TOTAL $_____

4. Payment Method (Payable in US$ drawn on U.S. bank, U.S. Money Order, or American Express)

❑ Check #_____ Amount Due $ _____

❑ Money Order

❑ Mastercard ❑ Visa ❑ American Express

Card # _____ Exp. Date _____

Signature: _____

Print Name: _____

5. Products/Services

Please describe the nature of your business (50 words or less, NOT ALL CAPS). If you are a Manufacturer's Representative or Distributor/Dealer, please indicate which manufacturers you represent and/or distribute for; if you are a student, please provide the name and location of your school, your major and your anticipated graduation date:

_____

_____

_____

_____

_____

_____

Do you buy AND sell equipment? ❑ Yes ❑ No Do you manufacture packaged equipment? ❑ Yes ❑ No

Available Codes:

01 ---Batteries/Battery Chargers
02 ---Control/Annunciator Systems
29 ---Education
30 ---Emission Control Equipment
04 ---Enclosures, Generator Set
05 ---Engines, Diesel or Gas
06 ---Engines, Gas Turbine
07 ---Engine Starters/Starting Aids
08 ---Filters, Lube Oil, Fuel or Air
28 ---Fuel Cells
03 ---Fuel Tanks and Fuel Storage Systems
09 ---Generator Laminations
10 ---Generator Sets
11 ---Generators/Alternators
12 ---Governors
13 ---Heat Recovery Systems
14 ---Instruments and controls, including meters, gauges, relays, contactors, or switches
15 ---Load Banks
16 ---Motor Generator Sets
17 ---Radiator/Heat Exchangers
18 ---Relays, Protective or Synchronizing
19 ---Silencers/Exhaust Systems/Noise Abatement
20 ---Solenoids
21 ---Switchgear and Transfer Switches (Automatic or Manual), Bypass Isolation Switches, and/or Switchgear Panels
22 ---Trailers, Generator Set
23 ---Transformers
24 ---Uninterruptible Power Supplies
25 ---Vibration Isolators
26 ---Voltage Regulators
27 ---Wiring Devices or Receptacles

Enter codes here:

Products sold: _____

_____

Products rented: _____

_____

Products serviced: _____

_____

6. Sponsor(s)

: A"Sponsor" is an EGSA Member who interested you in filling out this application. It is not mandatory that you have a sponsor for the Board to act favorably on this application; however, if a Member recommended that you consider membership, we request that individual's name and company name for our records.

Sponsor Name _____Company Name _____

7. Official Representative's Authorization

Signature _____Date _____

Need a Genset or Engine Controller?

Regardless of your application

Basler's Solutions are clearly 2020

- Generator/Engine metering, protection and control
- Reliable, flexible, easy to use in a cost-effective package
- Extremely rugged for the harshest environments
- Wide ambient temperature range from -40°C to +70°C
- SAE J1939 Engine ECU communications

BESTCOMS*Plus* PC Software

- Easy programming and setup
- Powerful programmable logic
- Included at no additional cost
- Remote control and monitoring via Ethernet or Modem
- USB communications

DGC-2020 Digital Genset Controller

- Controls stand alone and paralleled gensets
- Used in prime power, emergency standby or rental applications
- Enhanced generator protection and an integrated automatic synchronizer
- Generator/Mains Breaker control

IEM-2020 Industrial Engine Module

- Perfect for engine-driven applications, such as pumps or compressors
- Expanded programmable logic
- Replaces complicated and expensive PLCs
- Preprogrammed logic schemes for specific pump applications

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Basler Electric

For more information visit
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Tel: +86 512 8227 2888
chinainfo@basler.com

Singapore
Tel: +65 6844 6445
singaporeinfo@basler.com

Joseph Fedeli

In 2009, Joe Fedeli graduated from Sandy Valley High School in Magnolia, OH. By the time he was a junior, Joe had his sights on becoming a lineman for the power company.

Joe did not make the final cut when he applied to Ohio Edison, as many applicants returned for a second attempt at getting into the program. Rather than waiting another year to re-apply, he decided to seek other opportunities .

One day, Joe skipped school to visit Ohio Technical College (OTC). "I was like a kid in a candy store. There was so much to see and the thing that sparked my interest the most was High Performance and Racing and Classic Car Restoration. I like diesel, and wanted to learn more about it, so auto diesel was the program best suited for what I wanted to learn and where I wanted to be in 18 months."

Joe started at OTC in August 2009 as an Auto Diesel student and graduated from the program in February, 2011. He immediately enrolled in OTC's Power Generator Systems three month training program. During his 21 months at OTC, Joe made Honor Roll six times, maintaining 90% or higher on test scores and lab performance.

"Thank you to EGSA for the 2011 scholarship award. It will make my goals much more achievable. My interest in power generation grew incredibly over the 12 weeks that I was in the generator program. Now I am excited and greatly anticipating a career in the industry!"

Daryl M. Baublit

Hello, my name is Daryl M. Baublit. I currently live in Oshkosh, WI with my girlfriend, Emily. I am originally from Westbend, WI and I attend Fabco in Oshkosh. I am graduating this August with a technical degree, planning to work toward my Associate's Degree. I even made the dean's list this year.

I love to fish and ride my motorcycle all over Wisconsin in my free time. I formerly was a Huey crew chief in the United States Marine Corps. I deployed a total of three times while serving. I am looking forward to working for Fabco, as an electric power generator/marine technician.

Meet EGSA's David I. Coren Scholarship Recipients 2011-12

The Electrical Generating Systems Association (EGSA) Scholarship Committee has completed its review of applicant's credentials and, at the direction of the EGSA Board of Directors, has awarded twelve $2,500 scholarships for the 2011-12 academic year.

The David I. Coren Scholarship Program provides financial assistance to qualified students and is designed to have a positive impact on personnel shortages and will be an excellent vehicle for enhancing awareness of the industry. The competitive, merit-based scholarships are awarded to qualified students who plan on pursuing a career in the On-Site Power industry. In addition to their career focus, applicants must be full-time students, have a declared major related to On-Site Power, and maintain a minimum 2.8 GPA.

EGSA launched the **David I. Coren Scholarship Program** in 2002 to promote awareness of and generate interest in On-Site Power careers and the industry. The scholarship came in response to the growing need for skilled On-Site Power personnel. While EGSA has an established and widely-recognized On-Site Power School of its own, the Board of Directors noted the industry's need for highly skilled individuals from a variety of applicable disciplines.

About David I. Coren

After working in the financial sector for nearly a decade, David I. Coren began his career in On-Site Power at Zenith Controls, headed by his father and 1978-79 EGSA President Arthur Coren. David became active in Zenith's business development group. He worked closely with Executive Vice-President and 1998 EGSA President Ron Seftick and was eventually named President of Zenith Controls. David actively served EGSA as a Conference Presenter; along with serving on and chairing the Convention Planning Committee in 1998. Sadly, in April of 1999, he was diagnosed with a brain tumor and in September of 2000 we lost him.

David is remembered for his desire to succeed, his leadership potential and his ability to motivate his fellow Association Members.

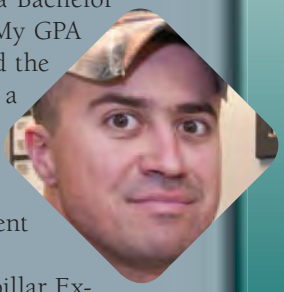
Douglas J. Fessel

My name is Douglas J. Fessel. I am very pleased to be a recipient of the EGSA scholarship. Lincoln Technical Institute of South Plainfield, NJ is doing a great job preparing me for a career in diesel technology. They have been instrumental in assisting me with preparation in remote power generation. I have received achievement awards for a 4.0 GPA in every course and have also received several leadership awards. My graduation is scheduled for this November. Currently, I live in Sussex County, NJ with my wife and two wonderful children. If I ever had a passionate hobby, it's looking after my kids. In addition to attending school full time, I also work for Cyoptics, Inc. as an operator for the fabrication of fiber optic components.

Nathan W. Johnson

My name is Nathan W. Johnson. I grew up in Steelstown, PA. I am currently attending Pennsylvania College of Technology in Williamsport, to acquire a dual degree in Diesel Technology and Power Generation. I plan to graduate in May of 2013. I began working as a Locomotive Technician apprentice for the Lycoming Valley Railroad in Newberry within the second month of attending college. We maintain, service, inspect and repair a fleet of 24 locomotives. My ultimate career goal is to develop an honest, trustworthy, and well-developed business. I desire to repair, service, rebuild and overhaul diesel engines in pick-up and commercial trucks. My hobbies include working on small engines including dirt bikes, snowmobiles, and ATV's. I also enjoy custom metal fabrication of various parts and accessories for cars, trucks, and RVs.

Rory Kania



I am Rory Kania of Wilkes-Barre, PA. I attend Pennsylvania College of Technology in Williamsport, where I am a candidate for dual degrees: an Associate in Electrical Power Generation Technology in 2012; and a Bachelor of Technology Management in 2013. My GPA is 3.75 and I have consistently achieved the Dean's List each semester. I am also a graduate of Pennsylvania College with an Associate Degree in Heavy Construction Equipment Technology in 2000 and Heavy Construction Equipment Technology in 2010.

I have been a recipient of the Caterpillar Excellence Fund Scholarship for the last 3 years and was inducted into the Phi Theta Kappa National Honor Society in 2010. I am a former member of the Service and Operation of Heavy Equipment Association and the Hydraulics and Heavy Technologies Association, having served as President in my second academic year.

I am employed as a heavy construction equipment operator by *Lycoming* County Resource Management Services, in the municipal solid waste landfill near Montgomery, PA. I also work in their electrical co-generation facility and assist the gas technicians. Presently, I am in my program's internship at the landfill and I enjoy the diversity. I welcome a challenge and believe that it helps to find new and creative ways to solve problems.

Brian Lederhaus

My name is Brian Lederhaus and I am originally from Clintonville, WI. As a current resident of Green Bay, WI I attended Fox Valley Technical College majoring and graduating from the Diesel Equipment Technology Program. I am currently enrolled in the Caterpillar Electrical Power Generation and Marine Engine Technician Program at FABTECH in Oshkosh. I will graduate in August and receive two Associate degrees in in Applied Science. I have made Dean's list every semester maintaining a 3.98 GPA. Prior to enrolling in school ,I served in the United States Air Force. In my spare time, I enjoy hunting and fishing, especially waterfowl hunting. Upon graduation, I hope to be employed by FABCO, the Caterpillar service dealer in Wisconsin as an Electrical Power Generation Technician.

Matthew Martin

My name is Matthew Martin and I'm from southwest Wisconsin where I was raised on a farm. Throughout high school, I participated heavily in the FFA. Through the FFA-Ag Mechanics competition, I was offered a scholarship to the Ohio Technical College (OTC) in Cleveland. The Diesel Generator Program is the main reason that I decided to atttend OTC. I graduated 21 months later with certification in Diesel Equipment Technology and Generator Power Systems. I maintained a 3.8 GPA and had perfect attendance. Before I finished the program, I had a job lined up with Cummins NPower as a Field Service-Power Generation Technician. I have been in the power gen field for three months and I'm eager and excited every day! My job is challenging and exciting and I'm really happy that I chose a career in the Power Generation field.

Logan Shane Nelson

My name is Logan Shane Nelson and I am enrolled in the Diesel Technology/On-Site Power Generation Program at Idaho State University in Pocatello, IL. As of last term, I have 56 credit hours and a 3.62 GPA. I will graduate in the Spring with an Associate Degree in Diesel/Diesel Electric Technology. I received a scholarship from the AEMP Heavy Equipment Foundation, the Huntsman Scholarship and the Idaho Promise Scholarship.

In my free time, I enjoy camping, fishing, hunting and dirt bike riding. I am a former volunteer for the Marion County Search & Rescue in Salem, OR and would like to get involved with a similar organization again. My weekends are spent with my family and working on my 1968 Chevy "project truck".

Upon graduation, I intend to pursue employment and continue to build upon my skills with a reputable company servicing generators somewhere west of the Mississippi. However, if the right opportunity arose, I would relocate just about anywhere.

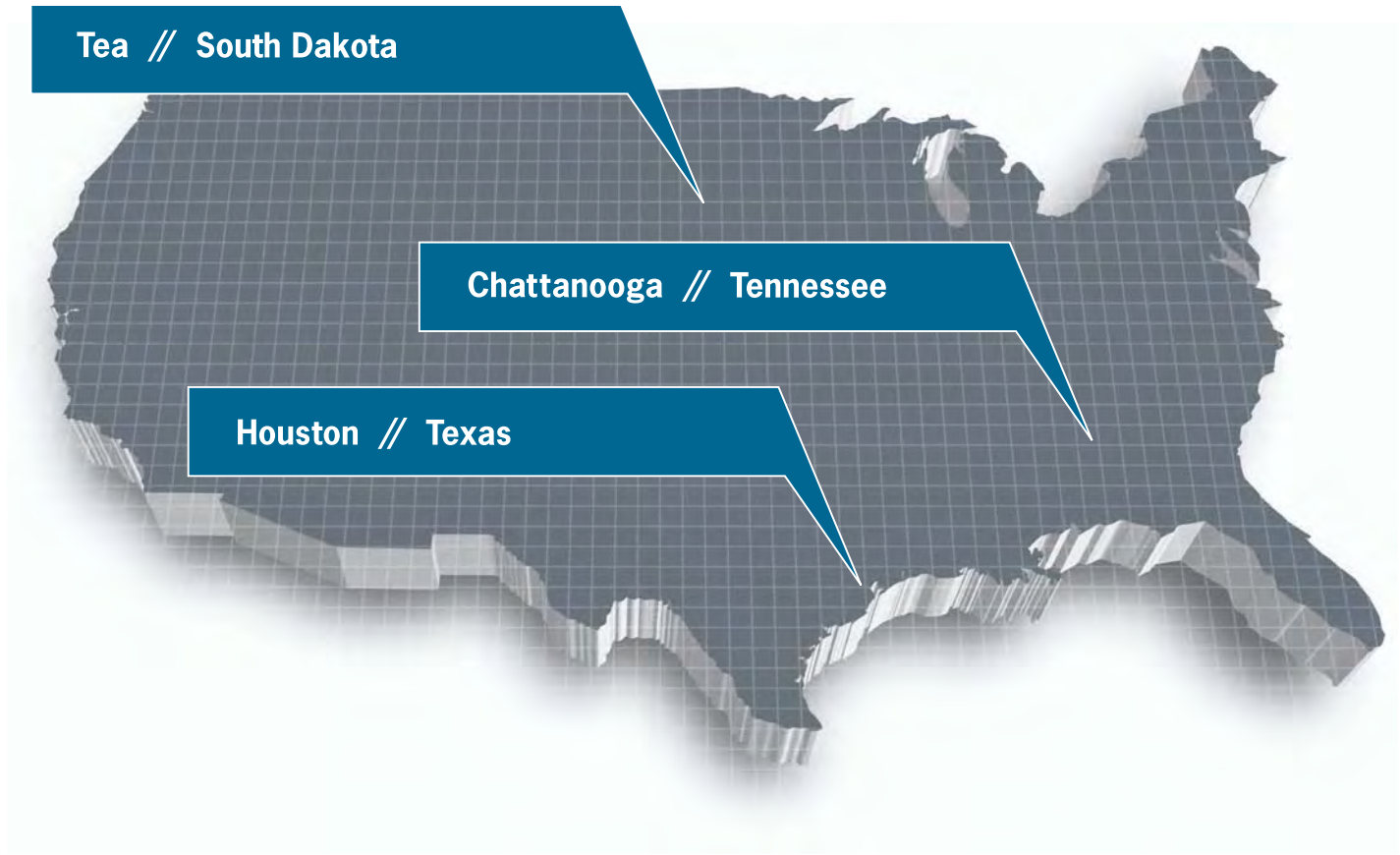
Thank you EGSA for your generosity in awarding this scholarship to me. My family is very proud.

Jonathan Simon

My name is Jonathan Simon and I am from Maurice, LA. In my spare time I enjoy playing sports and hunting. I am currently attending Oklahoma State University Institute of Technology in Okmulgee, OK. I am in the Aggreko "SelecTech" program, where I am majoring in Diesel & Heavy Equipment with an Associate's degree in Applied Science. I am currently halfway done with school, carrying a GPA of 3.7. I plan on graduating in the Summer of 2012. After graduation I plan on working with Aggreko and being part of their team.

Eric Stockhorst

I am from Glasgow, MO and I am currently a student at Linn State Technical College in Linn, MO. I graduated from Industrial Electricity in May 2011 from Linn State. While pursuing my first degree, I was in Electricity Club, Phi Theta Kappa and graduated with a 3.597 GPA. I am currently taking the Electrical Power Generation course at Linn State and will finish in August. Some of my hobbies are waterfowl hunting, bow hunting and fishing with friends and family.



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That's how dealers often describe the partnership with Lectrus and our generator enclosures. Our national footprint—three plants spanning 50-acres and a workforce 400 strong—provides our customers with a powerful advantage. Lectrus engineers and constructs custom, sound-attenuated metal enclosures for a wide range of customer-provided diesel generators.

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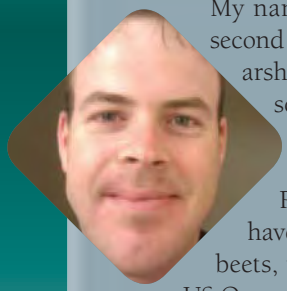
Nicholas Francis Sudela



My name is Nicholas Francis Sudela and I'm a second time recipient of the David Cohen Scholarship. In the past year, I have been a part of some really cool on-site power generation and cooling jobs. I work for Aggreko and almost all work relies on On-Site Power Generation. In the past year, I have worked in North Dakota, freezing sugar beets, in Washington D.C setting up the USGA US Open at the Congressional Country Club and in Beaumont, TX at my home shop, setting up large cooling tower jobs or other power and cooling applications.

I will be graduating with my Associate degree from Oklahoma State University Institute of Technology where I currently have a 3.8 GPA (maintained throughout my college career). Once I graduate, I will return to my home shop and become a full time service technician for Aggreko. I'm very excited about graduating and spending more time with my beautiful fiancé and 10 month old baby girl. I would like to thank the EGSA for allowing me to receive this great scholarship for a second time. I will keep you informed about my progress and thank you once again.

Kyle Take

My name is Kyle Take and I am from Caseyville, IL just across the river from St. Louis, MO. I am currently attending Oklahoma State University Institute of Technology in Okmulgee, OK where I am majoring in Diesel Mechanics and Heavy Equipment. My graduation date is scheduled for August and my current GPA is 3.5.

I have been attending school and working as a "select-tech" for Aggreko for the last two years. I have worked and supported several disasters during this time, including the Nashville, TN and Joplin, MO natural disasters. I have also been to Arizona to work the Barrett Jackson Car Auctions. I entered this program to receive hands-on training and that's exactly what I received. I recently signed a full-time employment contract to work with Aggreko after graduation.

I would like to thank EGSA for their continued support and for this scholarship.

Information detailing the David I. Coren Memorial Scholarship program—including a scholarship program brochure and application Packet—are available on the EGSA web site at *www.egsa.org*. For additional information please contact George Rowley, EGSA Director of Education at *G.Rowley@egsa.org* or 561-237-5557. ■

Family-owned Business Relies on Stand-by Power

McIlhenny Company protects world-famous Tabasco® Sauce with standby power system

Tabasco® sauce is the product of a family-owned and operated business that proudly traces its roots back to 1868. That's when Edmund McIlhenny gave up banking to devote his energies to growing pepper plants and bottling hot sauce made with his family's secret recipe.

McIlhenny Company makes world-famous Tabasco Sauce at the company's base of operations in Avery Island, LA, about 135 miles west of New Orleans, near the Gulf of Mexico. The company produces up to 720,000 bottles of several varieties of the popular condiment every day and ships them to 160 countries and territories around the world. The story of how the company makes its renowned sauce is described on its website: http://www.tabasco.com/tabasco_history/hot_pepper.cfm

Hurricane Rita Prompts New Measures to Safeguard Fields and Factory

This successful business was put at risk when Hurricane Rita slammed ashore in 2005, hitting Avery Island hard. McIlhenny Company executives thought that their plant and nearby pepper fields would be safe, since Avery Island is on higher ground than other neighboring communities. It was a very close call — too close for comfort. The low-lying fields (where the seed crop for Tabasco's special peppers are grown) were under water. In fact, the storm surge reached within a few inches of the factory floor where the sauce is bottled.

Standby Power System for Increased Protection

That harrowing experience prompted the company to take a number of protective measures to ensure that the Tabasco legacy continues, including installing a standby power system from Cummins.

A 2000 amp OTPC automatic transfer switch, located on the dewatering pumps platform, monitors utility power to the pumps. If the utility power falters, the transfer switch remotely signals the factory generators to start, ensuring that the pumps will continue to operate.

As part of the standby power system, McIlhenny Company installed two 750 kW generator sets in the factory building, a 500 kW generator set in the Corporate Office and a 250 kW generator set in the Family of Flavors® Building. An automatic transfer switch connects the dewatering pumps to the factory generator sets.

A PowerCommand® DCM 200 digital master control, designed for isolated bus paralleling systems, provides the system operator interface and system-level functions, including load add and load shed sequencing, and load demand.

A 500 kW generator and 1600 amp OTPC transfer switch protect the Corporate Office, which also serves as the emergency response headquarters and shelter during a hurricane.

Two 750 kW generator sets serve the factory and the dewatering pumps.

The factory, the levee, the dewatering pumps and the two 750 kW generators in the factory building can all be monitored from the Corporate Office building during a storm.

Cummins Mid-South worked with Genstar Power Services on the Project, which included two 750 kW generator sets and a custom-engineered paralleling system, including a DMC 200 digital master control and four sections of switchgear. In this particular configuration, the 2000 amp OTPC transfer switch is built into the paralleling system. Having the switch configured this way rather than freestanding is less complicated, because there is no need to run additional cabling. With a freestanding ATS, it would be necessary to run cables from the switch back to the paralleling switchgear.

The transfer switch monitors utility power; if the utility power fails, the transfer switch signals the generators to start, and when the generators are up to speed and synchronized, the OTPC transfers the load. When the utility power returns and stabilizes, the transfer switch returns the load safely to utility power.

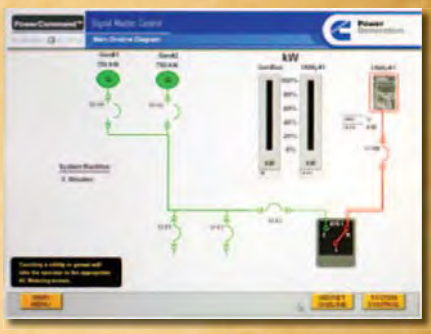
Keeping the Bayou at Bay

Avery Island rises to a height of 162 feet above sea level, but the plant buildings are located on the side of the slope at an elevation of only 8' 6". McIlhenny Company decided to construct a levee around three sides of the buildings to a height of 18 feet, that tapers back into the rising terrain. While this levee gives the Company flood protection, it also creates a bowl, and during a heavy rain storm or hurricane, the runoff from above the plant must be pumped through the levee, so that the water does not rise behind the levee and flood the plant. There is a high risk of losing power in such a situation, and the ability of company personnel to physically monitor the situation at the height of a storm is limited.

The Cummins standby power system with remote monitoring and control assures power to these critical pumps in the event of loss of line power. The system also allows McIlhenny employees to see what is happening and control it without putting people in harm's way. In addition to providing standby emergency power for the dewatering pumps, the system allows factory production to continue during unexpected power outages, because the system is sized to power the entire plant.

Tony Simmons, Executive VP at McIlhenny, emphasizes that their standby system has proved its value on a number of occasions, including during Hurricane Ike in 2008. Describing a more recent power crisis, Simmons said, "The local utility lost power to Avery Island, but the standby power system kicked in and allowed us to run a normal 10-hour shift."

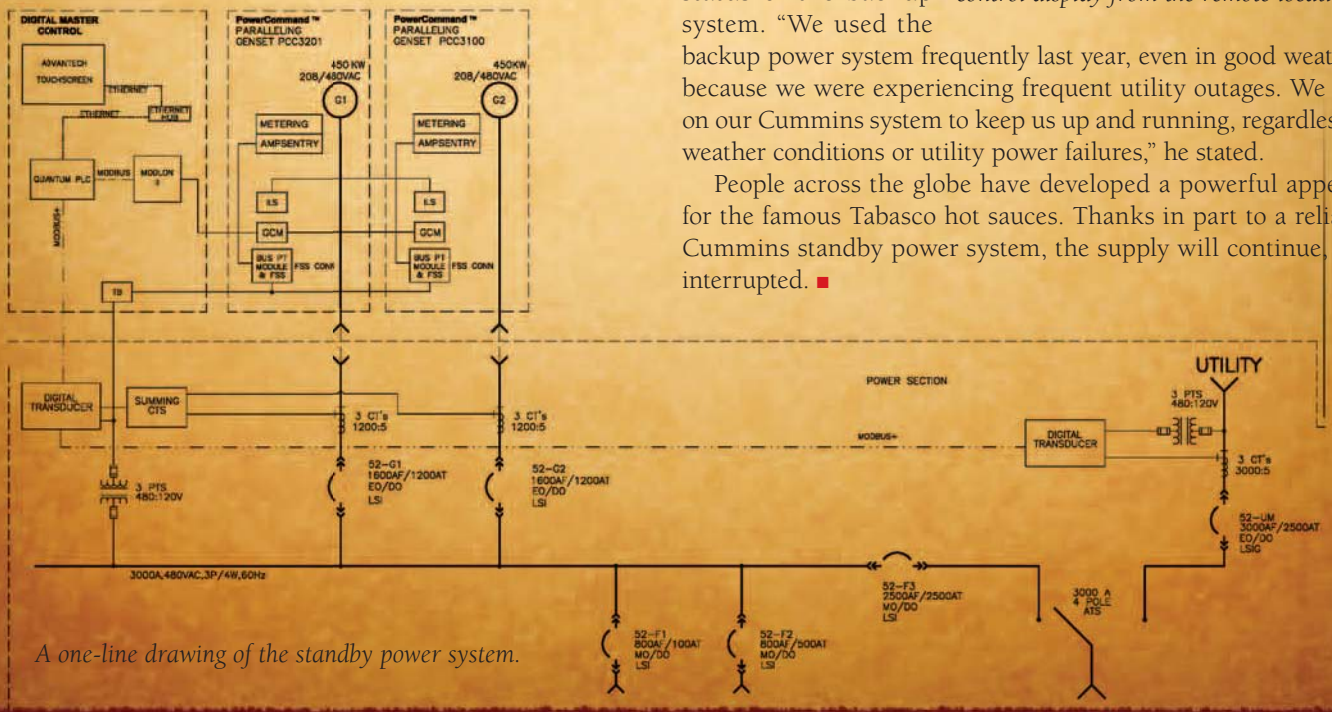
The PowerCommand® DCM 200 digital master control contains system-level functions including load add and load shed sequencing, and load demand. The DMC comes with a high-resolution touch screen.



This installation includes a remote monitoring system that allows the maintenance manager to monitor the power system from his desk. A closed-circuit television camera in the generator building makes it possible to read the generator control display from the remote location.

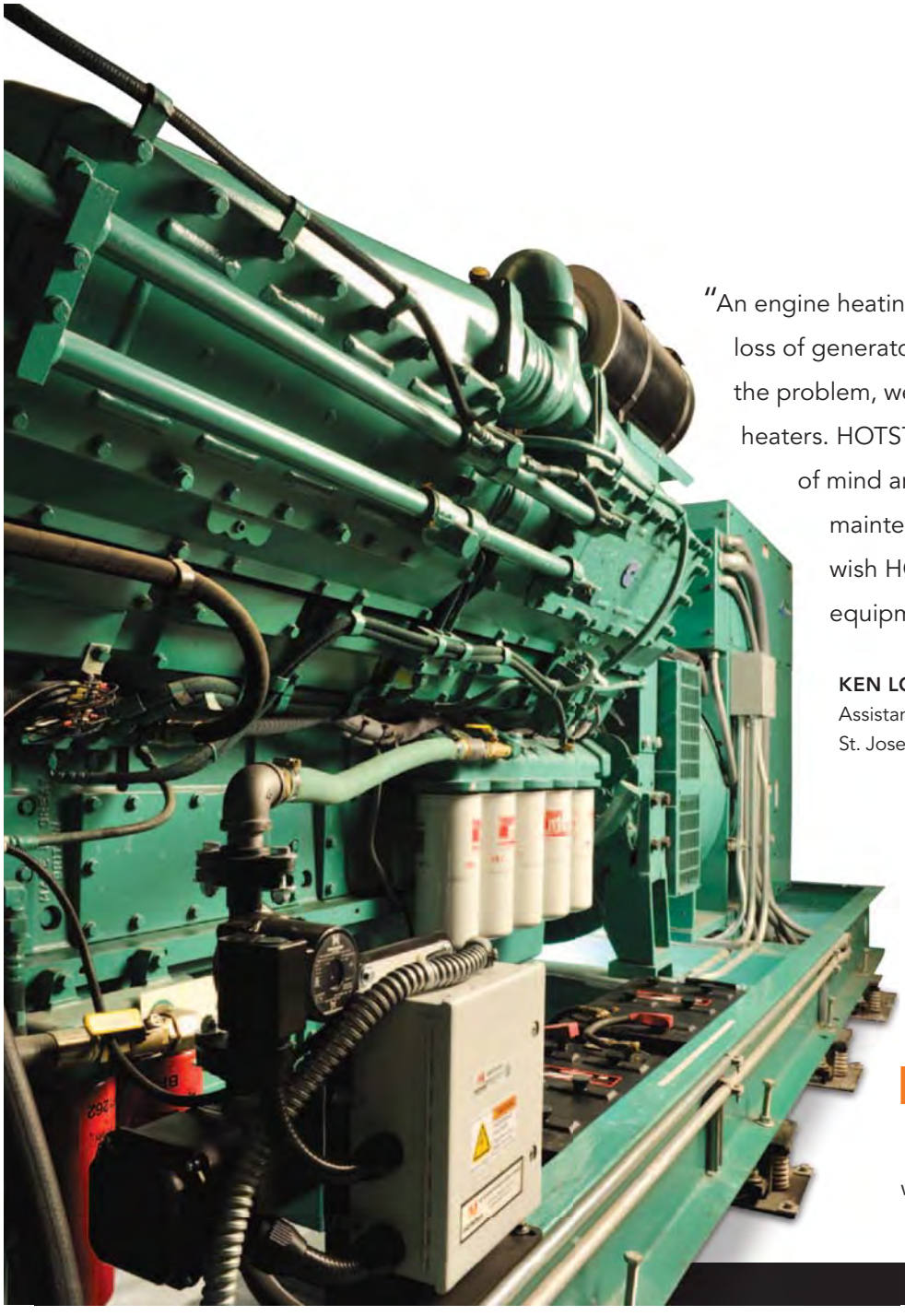
Patrick Castille, Tabasco's head of maintenance, is responsible for monitoring the status of the backup system. "We used the backup power system frequently last year, even in good weather, because we were experiencing frequent utility outages. We rely on our Cummins system to keep us up and running, regardless of weather conditions or utility power failures," he stated.

People across the globe have developed a powerful appetite for the famous Tabasco hot sauces. Thanks in part to a reliable Cummins standby power system, the supply will continue, uninterrupted. ■



A one-line drawing of the standby power system.

Saint Joseph's Hospital goes with the HOTflow™



"An engine heating unit failure caused a disastrous loss of generator power in our ER and OR. To fix the problem, we installed HOTSTART's HOTflow™ heaters. HOTSTART's reliability gives us peace of mind and saves us a lot of money on maintenance and operation costs. I wish HOTSTART heaters were standard equipment on all gensets."

KEN LOETSCHER
Assistant Director Facilities Management
St. Joseph's Hospital

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www.hotstart.com 509.536.8660

Having Trouble Receiving Your EGSA Emails?

We have, from time to time, received inquiries regarding difficulty in receiving EGSA emails. The reasons are varied and can be easily remedied and others are more complex. We have outlined some of the more common reasons below for your convenience.

Some simpler reasons for emails not appearing in your inbox:

Did you incorrectly type your email address when entering your contact information? Just one incorrect keystroke will cause an email to go to the wrong address and make it undeliverable.

Have you checked your Spam/Junk folder? Your spam filter could direct EGSA emails there. If, when you open your Spam/Junk folder, you see an EGSA email, simply open the email and click on "Mark as Wanted" in the tool bar above the email message. This will alert your email program that you want future EGSA emails to be directed to your inbox.

Have you set up other filters? If you've set up filters, the message from EGSA might be going to a different folder instead of your Inbox.

Now, for the more complex reasons for blocked emails:

To resolve some of the more complex issues, it may be necessary to get your company's IT department involved. Companies employ filters and/or blacklists to protect you from unsolicited email; however, this can make it impossible

to receive newsletters, announcements and promotions that you have requested. EGSA has set up a link on our website to help resolve this type of problem. We have even included a letter to help you communicate the problem to the proper department within your company to resolve it. Visit *www.egsa.org/Membership.aspx* for further details and troubleshooting. ■

Update Your Company's Listing for the 2012 EGSA Buying Guide

EGSA is asking all primary contacts to update their company listing for the 2012 Annual Buying Guide and Member Services Directory. The Buying Guide is distributed to more than 30,000 Diesel Progress subscribers as well as at POWER-GEN and NFMT Trade Shows, so it is important that each listing be as accurate as possible.

If you are the primary contact for your company's membership with EGSA, you have been sent an email with instructions on how to update your company listing. Changes need to be made BY SEPTEMBER 30, 2011 to be included in the guide. Please contact EGSA if you cannot locate your instructions. ■

Take on the Kelly Challenge - Reap the Rewards!

Putting "your money where your mouth is" takes on a whole new meaning when it comes to the Kelly Challenge! EGSA President John Kelly, in his recent article in the July/August issue of Powerline magazine, announced this challenge for all EGSA members to answer the call.

"With the Kelly Challenge, I am reaching out to both member firms and individuals to help further establish EGSA and the EGSA Technician Certification Program as THE industry standard. I ask that both firms and individuals initiate a "full-court press" to jumpstart this initiative and, in doing so, raise the standard of quality within the On-Site Electrical Generating Industry as a whole!" said Kelly in the article.

What can I do?

Especially in this economy, dealers are constantly faced with bidding on service contracts, only to find that someone else has submitted a lower bid. In the end, it becomes apparent when examining the labor budget, that the low-priced bidder does not, on average, utilize highly-trained technicians. The challenge is for our membership, especially during pre-marketing efforts prior to the service contracts formally coming out, to help influence the writing of service contracts and Request for Proposals (RFPs) to include the requirement of EGSA Certified Technicians.

What's in it for me?

Win EGSA bucks by following the details of the program! EGSA bucks are redeemable for any EGSA product, including things like conference registrations for you and your spouse, reference books, membership renewal dues, EGSA Golf and Fishing outings, and a host of other opportunities so forego the cash and redeem those bucks! Remember, EGSA bucks don't expire, so you can keep collecting to a maximum of $200 per person to use on a big ticket item, if you prefer.

How can I do it?

The key to success is for member companies to make it part of our culture to identify with EGSA and the value that technician certification brings to the Industry. Any opportunity to influence a specification that is distributed in print which prefers or requires the use of EGSA certified technicians will earn you $25 EGSA bucks!

In order to participate, simply scan and email a copy of the service contract or RFP with the Certified Technician reference highlighted within the document. Send that highlighted document to Ms. Kim Giles, our new Marketing Manager, at *k.giles@egsa.org*, and she will send you 25 EGSA bucks for each approved service contract submitted. It really is THAT EASY! ■

Do you display the EGSA member logo on your website?

Membership is a two-way street! One of the privileges of EGSA membership is to identify yourself in the OnSite Power Industry as a trusted resource by using the membership logo on your company's advertisements, website, business cards or stationary.

Including the EGSA logo on your site lets people know that:

- Your company is committed to staying on top of the industry news that's important to your business;
- Your membership shows you have a voice and are committed to staying active within the onsite power community; and
- Your company sets itself apart from its competitors.

Be a part of the marketing efforts of your membership and let EGSA's reputation work for you! Please download the EGSA logo and proudly display it on your company's web site and collateral materials.

To get the logos, please visit: *www.egsa.org/Membership.aspx.* ■

EGSA JOB BANK

Generator Field Service Technician

Pacific Power Products, the Kohler Power Systems Dealership for the Hawaiian Islands, is in need of experienced generator field service technicians. Candidate must be motivated, self sufficient, and computer literate. Strong customer communication and diagnostic skills are a must. Must have a High School Diploma and a minimum of 5-years experience servicing industrial, marine and residential, gaseous and diesel fueled generator sets and ancillary equipment. Military experience a plus. Job requires extensive travel and includes performing preventative maintenance, repairs, and start-ups of generator sets throughout the Hawaiian Islands. Clean driving record a must and applicant must pass a pre-employment medical examination and drug screening. We offer a full benefits package, i.e. Medical, Dental, Vision, 401(k), long and short term disability, paid holidays, paid vacation, overtime, and could offer paid relocation to the right candidate. E-mail your resume, work experience and salary requirements to *tvermette@pac-power.com*. Pacific Power Products is an equal opportunity employer and a drug free workplace. **EGSA Certified Technicians Preferred.**

Emergency Generator Sales

We are growing! Genset Services, Inc., the top tier industrial distributor for Generac generators in South Florida, has an opening for an outside salesperson. Candidates should have a minimum of 3 yrs sales experience in emergency power equipment or in a similar or related field. We offer a competitive compensation package that includes a base salary plus commission, car allowance, health insurance, vacation and investment plan. Please forward your resume with cover letter and salary requirements to *matt@gensetservices.com.*

EGSA Job Bank Guidelines

EGSA will advertise (free of charge) EGSA Member company job openings in the Job Bank. Free use of the Job Bank is strictly limited to companies advertising for positions available within their own firms. Companies who are not members of EGSA and third-party employment service firms who service our industry may utilize the Job Bank for a $300 fee. Blind box ads using the EGSA Job Bank address are available upon request; company logos may be included for an additional fee. EGSA reserves the right to refuse any advertisement it deems inappropriate to the publication. Please send your classified ad (limited to about 50 words) to: EGSA Job Bank, 1650 S. Dixie Hwy, Suite 400, Boca Raton, FL 33432. Or, send it via e-mail it to: *J.Kellough@EGSA.org*

Generator Field Technicians

TAW® is searching for experienced Generator Field Technicians in Orlando & Tampa, FL. Duties include: inspections, repairs, services and start-up of generators & ATS. Troubleshoot generators & automatic transfer switches. Diesel engine experience desired. E-mail resume to *ellen.donegan@tawinc.com*. Fax (813) 217-8076.AA/EOE. DFWP. *www.tawinc.com* **EGSA Certified Technicians Preferred.**

Senior Generator Technician

Leete Generators (California) is looking for a SENIOR GENERATOR TECHNICIAN with in-depth experience (10+ years) and knowledge of all generator components; installation, start-ups, repair, load bank testing, etc. Please do not apply if you do not have EXTENSIVE experience with back-up, industrial generators. E-mail: *l.ramsay@leetegenerators.com.*

Generator Technician

KELLY GENERATOR & EQUIPMENT, INC., the mid-Atlantic leader in standby electrical generators is seeking experienced Generator Technicians. We are a full service distributor of emergency standby and prime power located in the mid-Atlantic region that covers Delaware, Maryland, Northern Virginia, West Virginia and Washington, DC.

SALES, SERVICE, PARTS, RENTALS & TRAINING

- We offer factory training on the lines we represent as well as "in-house" training
- Medical, Dental, Vision, 401(k), profit sharing, short and long term disability, paid holidays, annual leave, overtime and paid "On Call"

Must have a High School Diploma (Vo-tech or GED), 3 – 5 years experience servicing industrial generator sets and associated equipment. Must be able to service, repair and troubleshoot the engine, as well as the alternator end and controls of the equipment. E-mail resumes to *dkelly@kge.com* **EGSA Certified Technicians Preferred.**

Generator Service Technicians

We are growing! Genset Services, Inc. is seeking qualified generator technicians for our Central and South Florida branches. Working knowledge of Diesel and gaseous engine-driven generator sets is required including service/maintenance, troubleshooting/repair of AC and DC electrical and control systems, as well as strong computer skills. Ideal candidate will have neat appearance and clean driving record. We offer a competitive compensation package, including a company vehicle, health insurance, vacation and an investment plan. Please forward your resume with cover letter and salary requirements to *keith@gensetservices.com* **EGSA Certified Technicians Preferred.**

EGSA JOB BANK

Power Solutions Manager
Generac Power Systems, North America

The Power Solutions manager is responsible for the promotion and technical sales support of Generac Industrial Products with a focus on the Modular Power Systems solutions. You will assist our Regional Sales Managers and Dealers on specific projects and work directly with key electrical engineering and construction firms to achieve a Generac product being specified and sourced. In addition, the PSM will conduct training seminars for the electrical engineering community, utilizing a pre-package curriculum, Professional Development Series Seminars. In this role, you can expect up to 70% travel and have the ability to work from a home office. BSEE/BSME preferred with 8-10 years technical sales/support and a strong electrical aptitude. Power Generation experience is a plus. Visit *www.Generac.com/about/careers.* Generac is an EOE .

Field Service Engineer

Russelectric Inc., has immediate openings for the Northern California Region. Seeking qualified engineers with backgrounds in emergency power systems (transfer switches, switchgear, plc's, scada). We offer full benefits package including company van, medical, dental, retirement plan. Please send your resume w/cover letter and salary requirements to *jdoran@russelectric.com.*

Rental Sales

Kelly Generator & Equipment, Inc. is seeking an experienced RENTAL SALES person to join our Team. We are a full-service distributor of emergency standby and prime power located in the mid-Atlantic region: Delaware, Maryland, Washington DC, Northern Virginia and West Virginia.

- Develop strong relationships with electrical and general contractors, home builders, event companies, industrial and commercial end users and rental houses.
- Focus will be on the rental (and sales) of mobile generator sets, as well as renting load banks.
- Sell service contracts

We offer a solid base with commission, medical, dental, vision, 401(k), profit sharing and more. Fax resumes to 410-257-5227 or e-mail ***dkelly@kge.com***

Penn Power Systems

Penn Power Systems, an industry leader with power systems sales of MTU Onsite Energy products is seeking qualified sales people for central and eastern PA. Individuals need to possess a high drive to succeed and be comfortable discussing projects with engineers, contractors and end users. Penn offers a very aggressive salary and compensation package along with benefits and the necessary sales tools to succeed. Please send resumes to *jtiffan@pennpowersystems.com*

Generator Service Technicians
Prime Power Services, Inc.

Growing company is seeking qualified candidates in the Raleigh, Charlotte, Columbia area- with 3-5 years of experience in the power generation field, skilled in both mechanical and electrical applications having knowledge in troubleshooting, maintenance/repair for gensets ranging from 5-2000 KW w/associated fuel systems, switchgear, transfers and controls. Must pass a criminal background/drug screen, experience w/UPS systems, and other EPSS systems.
Please forward your resume with cover letter and salary requirements to *ccernut@primepower.com*
EGSA Certified Technicians Preferred.

Industrial Switchgear Product Specialists

TAW® is looking for Industrial Switchgear Product Specialists for our Power & Distribution & Switchgear Div at our custom equipment facility in Riverview, FL. Candidate will increase sales of switchgear & power equipment centers for low & medium voltage product lines with new & existing accounts and target customers for utilities; OEM's & municipalities to drive volume. Prior experience either selling, or application engineering of, industrial switchgear systems. Prior experience working for a manufacturer, or re-seller of industrial switchgear – medium or low voltage in either an engineering; applications; or sales role. TAW® offers a competitive salary and commission as well as benefits. Candidates can be based, & will cover the following markets: Houston, Atlanta, Charlotte & Birmingham. Candidates can e-mail resumes to *ellen.donegan@tawinc.com*. or fax resumes to (813) 217-8076;. AA/EOE. DFWP. *www.tawinc.com*

Team-Focused Technicians ONLY

Would you enjoy joining an exciting team of professional technicians? This may be the opportunity you have been looking for!
DynaTech Power is a service-focused generator company with a strong team culture committed to delivering world-class service to our customers in PA, NJ, MD, and DE. E-mail Jim Goshert at *jim.goshert@dynagen.com* to request a hiring kit. EGSA graduates and interns welcome! 800.779.8809 x213. Learn more at *www.dynagen.com*
EGSA Certified Technicians Preferred.

Western Branch Diesel, Inc.

This position is for Territory Manager in Northern Va. area. Experienced candidate in the Power Generation Industry with sales or sales engineering background to sell and manage large accounts. Call for additional information. Please send resume to ***salesposition@wbdiesel.com*** or 12011 Balls Ford Road Manassas, VA 20109.

TERRITORY SALES REP

Kelly Generator & Equipment, Inc., is a rapid response, full service distributor of emergency standby and prime power located in the mid-Atlantic, one of the largest demand markets for power generation in the country. We offer SALES, SERVICE, PARTS, RENTALS, TRAINING. We have an immediate opening for a Territory Sales Representative. Great opportunity and territory for the right person!
Identify, pursue, grow and close new and existing client base of:

- Electrical, Design and Consulting Engineers
- Electrical Contractors
- General Contractors
- Commercial/Industrial End Users

(i.e., Mission Critical Data Centers, Healthcare Facilities, Manufacturing)
Medical, Dental, Vision, 401(k) and more.
Competitive base with commission.
Email *dkelly@kge.com* *www.kge.com*

Generator Service Technicians

CJ's Power Systems in Florida, a distributor for MTU Onsite Energy, is currently seeking qualified technicians throughout the State. Job includes: performing planned maintenance, diagnostics, repairs, and startups of generators. Knowledgeable, computer skills, clean driving record a must. Excellent pay, medical, and other benefits. E-mail resumes: *jobs@cjspower.com*; fax to 352-732-0606
EGSA Certified Technicians Preferred.

Generator Sales Territory

Luby Equipment Services, a St Louis based company is looking for a self-motivated, aggressive salesperson for our Illinois territory. This is a great chance for a person to build a strong customer base. Luby Equipment is the industrial dealer for Generac Power Systems. This opening offers a great base pay plus commissions on sales. Company car and travel expenses are all covered. Luby Equipment is a very solid, privately-held company. Heavy Equipment, Stand-by Power and Oil Field Services are our main lines of business. Please send your resume and we can start showing you a bright future. Send resume to; *tsommer@lubyequipment.com.*

Electro-Mechanical Technicians

The Fleet Management Department of Pinellas County, FL has two openings for Electro-Mechanical Technicians in the Tampa Bay area. Salary Range: $36,046-$56,056. We offer excellent benefit and compensation packages. For more information about these positions or the requirements to apply, please visit our website at ***https://employment.pinellascounty.org***
EOE/AA/ADA/DFW/VP

Generator Field Technician

PM Technologies, LLC has several immediate openings for generator technicians. We are located and operate in Michigan, Ohio and northern Indiana. High School Diploma or equivalent a must. Military experience a plus. Must be able to troubleshoot and repair the engine (diesel and gaseous) as well as the generator end. Customer interaction will be required on a daily basis. We need highly motivated, self sufficient people to assist in growing our expansion efforts at new branch locations. Benefits include company vehicle, 401k, Health, Dental and Vision coverage's as well as paid bonuses for new account procurement. Fax resumes to 248.374.6408 or e-mail to *dpopp@pmtech.org* **EGSA Certified Technicians Preferred.**

Experienced Power
Generation Technicians Wanted

Penn Power Systems, leaders in the power generation business, is actively seeking experienced field service technicians for open positions in our upstate New York and Pennsylvania locations. Candidates should be familiar with natural gas and diesel prime movers with industry experience and knowledge of systems and controls. Penn Power Systems and its divisions offer industry competitive salaries, medical, 401(k), and vacation benefits. All interested parties should send resumes and work related history to *jobs@pennpowersystems.com* or call 1-877-736-4473. **We Proudly Employ EGSA Certified Generator Technicians.** EOE M/F/D/V

Regional Field Service Manager

Join the industry's fastest growing Light Tower, Generator, Water Trailer and Diesel-powered Pump Company. Our Team is dedicated to providing the best solutions, customer service and technical support in the industry.
A working knowledge of mechanical design and electronics is required; strong communication and trouble shooting skills preferred. Compensation and benefit package include: base salary + commission, Medical, Dental, Vision, 401K and company vehicle. Extensive travel is required.
Western Region – WA, OR, CA, NV, AZ, CO, UT
Gulf States Region – OK, AR, LA, TX, NM
Please send resume to ***jdavids@m-p-llc.com*** or
Attn: Julie Davids 215 Power Dr. Berlin, WI 54923
www.m-p-llc.com

EGSA JOB BANK

Generator Service Technicians

Buckeye Power Sales, the oldest signed Kohler Distributor, seeks service technicians to perform PM's, start-up, & warranty work on power generators in Ohio and Indiana. Must have knowledge of gas & diesel engines, A/C D/C circuits, 1+ years experience with generator equipment, able to troubleshoot from wiring schematics, knowledge of NFPA 70E; knowledge of Kohler a plus. Must have clean driving record, drug screen and background. Travel to customer sites; able to drive manual transmission a plus. Company vehicle provided. Competitive pay & full benefits package. Apply: *resumes@buckeyepowersales.com*. No phone calls or agencies please. E/O/E Drug-Free Workplace **EGSA Certified Technicians Preferred.**

Generator Service Sales

Full-time experienced Generator Service Salesperson in Phoenix, AZ. Territory includes southern Nevada, Arizona, and New Mexico. A successful candidate will need a working knowledge of power generation equipment and be strongly driven to seek out new customers. We offer competitive base and commission rates along with a full complement of benefits. Please fax resumes to (602) 233-2620.

Generator Service Technician

Antilles Power is seeking a highly motivated, self-sufficient candidate for our Caribbean, Virgin Islands locations. Duties include: Preventative Maintenance, Troubleshooting, Commissioning, Diagnostics, repairs of Generators and Automatic Transfer Switches. Diesel engine and marine experience required. Drug screening and clean driving records are prerequisites. Computer knowledge and **EGSA Certified Technician Preferred**. E-mail resume with references and salary requirements to *m.torres@antillespower.com*

Technical Support Engineer

Located in Fort Collins, CO on the front range of the Rocky Mountains, DEIF continues to grow and expand. Currently, we are looking for a new team member that will help customers with start-up/commissioning activities, provide technical training and answer technical inquiries. This is a hands-on, entry-level position for Electrical or Mechanical Engineering graduates with some experience or training in distributed power generation. Travel required, including international. See complete job description at *www.deif.com* and email resume to *us@deif.com*.

Pump Product Manager

Join the industry's fastest growing Light Tower, Generator, Water Trailer and Diesel-powered Pump company. Our Team is dedicated to providing the best solutions, customer service and technical support in the industry.
This position is responsible for the development, planning and marketing of new product and product enhancements for Magnum's Pump line. This will involve managing all aspects of the product lifecycle, defining product vision and gathering and prioritizing product and customer requirements. The ideal candidate will ensure pump performance is in-line with customer expectations, revenue goals and overall company strategy and objectives. Complete benefit package offered.
Please send resume to *jdavids@m-p-llc.com* or
Attn: Julie Davids 215 Power Dr. Berlin, WI 54923
www.m-p-llc.com

Generator Set Sales/Service

Experienced sales/service engineer needed by southern California company to sell engine generator sets. Please respond to *J.Kellough@EGSA.org* (Reference PLND06JB-1).

Generator Field Technician-Experienced

ACF Standby Systems seeks full-time experienced generator field technicians for openings in the Orlando/Miami, FL areas. Requires advanced knowledge of standby generator systems. Minimum 5 years experience. Working knowledge of 12 & 24 VDC controls. Company offers a full comprehensive benefits package. Competitive wage, company vehicle, laptop and cell phone for qualified candidates. Send resumes to careers@acfpower.com or fax to HR at 813-621-6980. **EGSA Certified Technicians Preferred.**

Generator Technician

Full-time experienced generator field technician needed for Central Florida/Lakeland area. Applicant must have diesel engine experience and transer switch knowledge, preferably EGSA certified. Job includes performing preventive maintenance, repairs, and startups of generators. Clean driving record a must and applicant must pass drug screening. Competitive wages and benefits. E-mail resumes to *skapparos@suregen.com* **EGSA Certified Technicians Preferred.**

EXPERIENCED MECHANICAL APPLICATION ENGINEER

Enercon Engineering, an established Midwestern electrical and mechanical manufacturer and systems integrator requires an ***Experienced Mechanical Application Engineer*** in East Peoria, IL with genset packaging expertise. M.E. or equivalent industry experience with diesel and gas engine gensets required. We provide a competitive relocation, 401K, Health and Dental plan. Salary commensurate with experience and education. Send cover letter, resume and salary requirements to *hr@enercon-eng.com*

Enercon is an equal opportunity employer.

ENERCON ENGINEERING, INC.
CUSTOM SWITCHGEAR • CONTROL SYSTEMS • TRANSFER SWITCHES • PACKAGING • POWER MODULES • ENCLOSURES

Lister Petter Aims For North American Growth With Sommers

Lister Petter has named Sommers Motor Generator Sales as the British firm's master distributor for eastern Canada and Wisconsin and Minnesota.

Based in Gloucester, England, Lister Petter recently launched a new strategic direction under new ownership, with an increased focus on expanding its business in North America. Now, more than 150 years old, the company also operates in France, South Africa and India.

In Canada, Sommers will be master distributor for Lister Petter generator systems, providing service and support to distributors, contractors and customers from Manitoba to Newfoundland. In Wisconson and Minnesota, Sommers will support the Lister Petter line of diesel engines, as well as its full range of generator systems.

Sommers General Manager, Chris McGregor, sees the new relationship as a strong competitive move for distributors and contractors who sell generator systems into prime power applications. Sommers is very familiar with the line after many years of selling and servicing Lister Petter systems.

By ordering from Sommers' inventories, Canadian and U.S. customers will now have immediate access to CSA-approved Lister Petter systems. Support from Sommers sales and technical staff will also allow dealers to respond to customer requests faster and more creatively with Lister Petter products customized to their needs.

Lister Petter is best known for its smaller to mid-size prime power systems in the 8 to 20 kW range, driven by the company's own air-cooled and water-cooled diesel engines. These systems have proven very successful as prime power sources in remote parts of Canada and in marine applications on the east coast. Trailerized units are also recommended for high-hour usage at construction sites. In alternative energy applications, Lister Petter is gaining recognition as a dependable backup to solar and wind power.

Sommers and Lister Petter have enjoyed a close working relationship for many years leading up to their new association.

Sommers will stock Lister Petter systems and parts in all three of its warehouse locations, including Tavistock, ON, Halifax, NS and in Menomonee, WI. For more information, visit *www.sommersgen.com.* ■

Ronald Blauet Named Supply Chain Manager for Brooks Utility Products

Ronald Blauet has joined Brooks Utility Products in the newly-created position of Supply Chain Manager, to lead the implementation of the completely re-engineered supply chain system.

With more than 17 year of experience in purchasing and supply chain management in manufacturing environments, Blauet possesses hands-on experience in managing raw materials, engineered components, capital equipment, overseas sourcing and outside processor operations such as painters and platers. He has also spent a number of years managing materials and production control at the plant level.

"Capitalizing on Ron's impressive expertise is key for the implementation of our re-engineered supply chain", said Jeff Hanft, President of Brooks Utility Products. "Strong supply chain management, coupled with planned engineering and manufacturing enhancements, will allow us to provide the most efficient production capabilities possible, while consistently meeting the needs of our customers."

Ron holds a Masters of Science in Business Administration with a focus on Quality Systems and Operations Management from Madonna University. He also serves on the Board of Directors for the Institute for Supply Management in Southeast Michigan.

Brooks Utility Products manufactures and supplies a complete line of metering-related products for the utility industry. Brooks UP is part of the Tyden Group of companies, providers of innovative and customized security solutions and product identification technology. For more information about Brooks UP, visit *www.brooksutility.com.* ■

Altec NUECO Acquires Assets of Pitman Utility Products

Altec NUECO, a wholly-owned subsidiary of Altec, Inc., announced that it has finalized the acquisition of certain assets related to the digger derrick and backyard derrick product lines of Pitman Utility Products from Crash Rescue Equipment Service Inc. in Dallas, TX.

"This acquisition provides Altec with the opportunity to better serve and support our customers," said Lee Styslinger III, Chairman and CEO of Altec, Inc. "Pitman maintained a well-established reputation for producing reliable, quality products for many years. Altec is committed to continue offering Pitman customers support and service for their existing derrick products."

Altec, Inc., is the holding company for the world's leading equipment and service provider for the electric utility, telecommunications, contractor and tree care industries. The company provides products and services in more than 100 countries throughout the world. For more information, visit *www.altec.com.* ■

ASCO invites you to compare power switching and controls SERVICE

Ten critical questions will help you compare service providers

Three of the questions are:*
1. What exactly will you do to maintain my critical equipment?
2. Are your techs trained and equipped to comply with safety standards?
3. What spare parts do you carry for my equipment?

Compare ASCO's nationwide network of 100+ highly trained, factory direct technicians. Full time. Fully equipped. Located coast to coast to respond to your emergencies faster. They partner with 450+ Emerson Electrical Reliability Services technicians to offer unparalleled on-site critical power service.

Compare Service. Prefer ASCO.

ASCO Power Switching & Controls
Just another reason why Emerson Network Power is the global leader in enabling Business-Critical Continuity.™

ASCO®

UPGRADE DESIGN INSTALL OPERATE ASCO®

ASCO Services provides
- Regular maintenance
- Emergency site support 24/7
- Modifications and upgrades
- Start up and commissioning
- EGSA-certified technicians

ascopower.com, (800) 800-ASCO
ascoapu.com

*See "10 Service Questions" at www.ascoapu.com. Register, then click the Articles tab.

EMERSON™
Network Power

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